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THESIS

BALANCED FORCE STRUCTURE

by

Alton K. Terkhorn

December 1986

Thesis Advisor: Jerry L. McCaffrey

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Within five years after the Program was promulgated, the Navy's emphasis appeared to shift from building a well balanced fleet to sustaining a 600 Ship Navy. This thesis traces the history of the shipbuilding programs to determine the current status of the Fleet Expansion Program. It concludes that the original objectives are still being pursued, however, there is an indication that the emphasis will shift in the future.

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Balanced Forced Structure

by

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Lieutenant, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 1986

ABSTRACT

The Fleet Expansion Program is designed to rebuild the Navy and to regain maritime superiority. It has two main objectives. The first and most important objective is to build a balanced force structure consisting of 639 specially selected ships. The second objective is politically oriented and calls for a 600 ship count by the end of the decade.

Within five years after the Program was promulgated, the Navy's emphasis appeared to shift from building a well balanced fleet to sustaining a 600-Ship Navy. This thesis traces the history of the shipbuilding programs to determine the current status of the Fleet Expansion Program. It concludes that the original objectives are still being pursued, however, there is an indication that the emphasis will shift in the future.

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I. INTRODUCTION

In 1970, the United States boasted the strongest Navy in the world. Representing one of the greatest accumulations of seapower in the history of the nation, the fleet consisted of over 1000 ships and 23 aircraft carriers. However, ten years later, the Navy had only 456 ships and 12 deployable carriers. This massive reduction was the result of two main overlapping factors. First, many World War Two vintage ships reached the end of their useful service lives during this period and were subsequently retired. Secondly, there was an outcry in the Post-Vietnam era to contain defense spending. Since the Navy's shipbuilding programs were the largest and most expensive items in the defense budget, they were the easiest targets for budget cutters. Therefore, decommissioned ships were never replaced and the naval defense gap continuously increased until the 1980s.

By the end of the 1970s, the weaknesses of the Navy were becoming apparent. As the United States fleet was shrinking, the Soviet Navy was completing its transition from a small coastal navy into the world's largest and most formidable "blue water" navy. Furthermore, the requirements for the United States Navy were also growing, since events in Iran and Afghanistan necessitated an increased naval presence in the Indian Ocean. Therefore, the United States Navy had a full-time three ocean commitment with a much smaller fleet, and was matched against a superior foe.

In response to the Soviet Naval threat, the Reagan Administration developed a naval recovery program to regain maritime superiority. There were seven main elements in this program, but one of the most important components called for the "establishment of a shipbuilding, reactivation, and conversion program to increase the force with the right kinds of ships...." [Ref. 1:p. 3] This element was the foundation for the Fleet Expansion Program, or as it is also called, the 600-Ship Navy.

The Fleet Expansion Program had two goals. The first and most important objective was to build a "balanced force structure" based on the six building blocks seen in Figure 1. Using the balanced force structure concept, each task group would be composed of the proper mix of different ship types. This would provide protection for the entire task group against air, surface or sub-surface threats. To achieve the balanced force structure developed by the Reagan Administration, the Navy would need at least 639 specially selected ships. Furthermore, this build-up would require one of the most dedicated and aggressive peacetime shipbuilding programs in the history of the Navy.

A. 15 CARRIER BATTLE GROUPS

B. 4 SURFACE ACTION GROUPS

C. 100 ATTACK SUBMARINES

D. MAF-PLUS-MAB LIFT CAPABILITY

E. 31 MINE COUNTERMEASURE SHIPS

F. SUFFICIENT NUMBER OF SUPPORT SHIPS

Figure 1 Foundations for the Fleet Expansion Program

The second goal was more politically oriented, but still essential to the Navy. This objective called for a 600 ship count by the end of the decade. Since many Congressmen think of shipbuilding in terms of numbers of ships being built rather than force structure or capability, the 600 ship count was a goal which Congressmen could aim for and could comprehend. In essence, this goal promoted congressional advocacy and support. Furthermore, it gave the Fleet Expansion Program a common purpose for the legislative and executive branches.

Therefore, the Fleet Expansion Program was a well-rounded program which was geared for success. First, it fulfilled the need to increase the number of ships to counter the Soviet threat. Secondly, the expansion would not be haphazard. Since Reagan's Balanced Force Structure imposed the minimum composition for the different task groups, the expansion would be controlled so that only the right type of ships would be built. Combined with the balanced force structure, the expansion would enable the Navy to regain maritime superiority. Finally, since the expansion would be a massive undertaking over a long period of time, it would need a driving goal to constantly renew a dedicated and concentrated effort from Congress. The 600 ship goal provided this stimulus. Furthermore, the time constraint on the goal would establish the pace for a rapid build-up.

However, by 1986, the emphasis appeared to shift from building a well balanced fleet to building and sustaining a 600-Ship Navy. In Congressional hearings, Congressmen continuously asked about the status of the "600-Ship Navy" program, and how particular shipbuilding programs would affect the outcome of the overall 600 ship count. In fact, Congressmen were more concerned with what type of ships would be counted in the Naval Summary rather than how those ship categories affected the overall balance. Newspapers and magazines evaluated the growth in the total number of ships, but did not address the development of the force structure. Even the top naval leaders spoke of the Fleet Expansion Program in terms of 600 ships rather than structure. [Ref. 2:pp. 4-13]

With the passage of the FY 86 budget, the Reagan Administration stated that the Navy would have 600 ships by 1989. This represented an outstanding achievement since the force structure grew simultaneously with the growth in the number of ships.

However, if the emphasis has shifted to sustaining this 600 ship numerical goal after 1989, then the balanced force structure will suffer. The balanced force structure represented the minimum force needed to regain maritime superiority and the maximum risk acceptable to the Reagan Administration. Therefore, any compromise short of the force level requirements would have a detrimental effect on national security. In view of the severity of the consequences, this thesis will examine the history of President Reagan's shipbuilding programs to determine the current status of the Fleet Expansion Program. Specifically, this thesis will determine whether the Administration is still developing its original balanced force structure or if the Administration has shifted its emphasis to sustaining a 600 ship count.

A. METHODOLOGY AND ORGANIZATION

To determine the status of the Fleet Expansion Program, this thesis will have to examine the past, the present and the future. Chapter Two will develop the model of the Balanced Force Structure advocated by the Reagan Administration. This model will show the force level requirements by ship category. The chapter will also show the importance of the different ship categories within the task groups, and the strong interrelationship of the different task groups within the fleet. Finally, Chapter Two will familiarize the reader with the importance of a balanced force structure concept.

With the exception of a few ships, the Balanced Force Structure Model was taken from Congressional testimony. Those ships which were not specifically mentioned in the force build-up will still be included in the research, but will be treated in such a way that they will not create an undue bias for or against the Navy. This will be discussed in greater detail in the next chapter.

Chapter Two used the historical research approach to assimilate the data necessary to build the model. The next two chapters also used the same approach, but also included certain aspects of the Navy's Program Development approach. The Navy determines the future composition of naval forces by using the current force levels as a base line. Initially, all ships which are expected to enter the fleet within the next ten years are added to the base. This includes all ships which have been appropriated by Congress and all ships in the current Department of Defense Five Year Shipbuilding Program (FYSBP). Then all ships which will reach the end of their useful service lives during the ten year period are excluded from the force level. This will give the approximate future force level. Thereafter, the future force level is compared against a standard to determine the future deficiencies. [Ref. 3:pp. 26-30]

Chapter Three will be used to connect the past, the present and the future. This chapter will examine the shipbuilding history of each ship category. The primary emphasis will be placed on how the Reagan Administration planned on using the ship type to build and expand the fleet, and what actually happened up to 1986. Based upon this information and the shipbuilding time assumptions presented below, the force structure summary will be developed for

1989. Whereas one of the ultimate objectives is to determine what the summary of the U.S. Naval Forces will be in 1989, any future funding after FY 86 will not be significant for this chapter since ships appropriated after FY 86 would not enter the fleet until the early 1990s.

The data used to examine the history in Chapter Three came primarily from the Jane's Fighting Ships series, shipbuilding appropriations and congressional testimony. Using the respected Jane's Fighting Ships series will lend authenticity and consistency to this thesis.

Chapter Four will use the information developed in the previous two chapters to determine if the Navy will continue to pursue the progression of a balanced force structure, or if the Navy will shift its emphasis to sustaining a 600 ship count.

In the first section of Chapter Four, the Summary of U.S. Naval Forces in 1989 will be modified to include all ships undergoing construction. This will account for all ships which were appropriated prior to and including FY 86. The modified summary will then be compared against the Balanced Force Structure Model. This process will identify those ship categories which will not meet force level goals by the end of the decade.

The second section of Chapter Four will succinctly determine the status of the Fleet Expansion Program. The ship categories which were identified in the previous section will be evaluated in the the most recent FYSBP. If the deficient ship categories are included in the FYSBP, and if the additional shipbuilding programs will increase the size of the fleet, then the Navy is still pursuing the expansion of the balanced force structure. On the other hand, if the deficient ship categories are included but are intended to be used as replacements, then the Navy has shifted its emphasis to sustaining the 600 ship count.

The final chapter will concisely review the interpretations of the findings leading to the conclusions. Recommendations will be offered based on those conclusions.

Since the Navy has ships which are not included in the total ship count, this thesis will use the same ship counting techniques employed by the Department of Defense. The ships counted are those ships which contribute to the Navy's wartime missions. This methodology includes combatants and ships which operate in direct support of the combatants as seen in Figure 2.

B. ASSUMPTIONS

The Fleet Expansion Program was developed to counter the Soviet naval threat by regaining control of the sea. This thesis will not question the effectiveness of the program, but will assume that the goals of the balanced force structure represent the correct organization needed to regain maritime superiority.

Strategic Forces:
- Ballistic Missile Submarines (SSBN)

Battle Forces:
- Aircraft Carriers (CV/CVN)
- Cruisers (CG/CGN)
- Attack Submarines (SS/SSN)
- Battleships (BB)
- Destroyers (DD/DDG)
- Frigates (FF/FFG)
- Small Patrol Combatants (PG/PHM)

Amphibious Ships:
- Command Ship (LCC)
- Landing Ship (LST)
- Helo Transport (LPH)
- Landing Dock (LSD)
- Assault Transport (LKA)
- Helo Assault Ship (LHA)
- General Assault (LHD)
- Dock Transport (LPD)

Mine Warfare Ships:
- Minesweepers (MSO)
- Minehunters (MSH)
- Mine Countermeasure Ships (MCM)

Replenishment Ships:
- Station Ships (AOE/AOR)
- Ammunition (AE/TAE)
- Oiler (AE/TAO)
- Stores (AFS/TAFS/TAF)

Material Support Forces:
- Destroyer Tenders (AD)
- Repair Ships (AR)
- Submarine Tenders (AS)
- SSBN SUPPORT (AS/TAK)

Fleet Support Ships:
- Surveillance (T-AGOS)
- Submarine Rescue (ASR)
- Salvage (ARS)
- Salvage/Rescue (ATS)
- Fleet Ocean-going Tug (ATF/TATF)

Category A Mobilization Forces: Reserve ships which participate in combat or direct combat support

Figure 2 Ships Included in Total Force, by type

In developing the future force structure in Chapters Three and Four, certain commonly held assumptions were used for the retirement age and building time of the different ship categories. In this thesis, the retirement age will reflect the time from the commissioning date to the date the ship is removed from active service. The building time will reflect the time from when the ship was fully appropriated to the time the ship will be delivered. The assumptions for the different ship categories are presented in Figure 3. Furthermore, the future force structure calculations were based on the assumption that the Navy will not deviate from the time assumptions, except in those cases which were noted by 1986.

C. ACRONYMS AND DEFINITIONS

Since the area being researched is full of acronyms and sometimes confusing terminology, the following list is included for easy reference and clarification.

1. Category A Mobilization Forces

Ships in the Naval Reserve Force which would become part of the deployable battle fleet in the event of hostilities. These ships would immediately go to war and are therefore counted in the total ship count. In 1986, this force included 18 surface combatants (DD/FFG) and two amphibious ships (LST).

Ship Retirement Assumptions

50 Years
Aircraft Carriers (CV/CVN)

40 Years
Destroyer Tenders (AD)
Submarine Tenders (AS)
Repair Tenders (AR)
Fleet Oilers (AO/TAO)
Salvage Ships (ARS)
Submarine Rescue (ASR)
Fleet Tug (ATF/TATF)

30 Years
All others

Shipbuilding Time Assumptions

8 Years
Aircraft Carriers (CVN)

6 Years
Ballistic Missile Submarine (SSBN)

5 Years
Guided Missile Nuclear-Powered Cruiser (CGN)
Attack Submarine (SSN)

4 Years
All Others

Figure 3 Time Assumptions

2. Category B Mobilization Forces

Naval Reserve Force ships which are not counted in the total ship count. Since these ships are principally intended for training, they would not become a part of the deployable battle fleet. This force includes the 18 reserve minesweepers (MSO).

3. Defense in Depth

This concept is one of the central ideas behind the balanced force structure. Each task group is organized so that there are several layers of protection against a multi-dimensional threat. For example, a carrier battle group contains long range and short range missile ships for anti-air warfare. If enemy aircraft were approaching the carrier, they would be intercepted by the carrier's aircraft. If the enemy penetrated through the first layer of defense, they would then be subjected to the wrath of the long range missile ships. Even if the enemy survived the second layer, they would then have to pass through the short range missile ships' barrier. Likewise, there are several layers around the carrier to protect against submarine and surface warfare.

4. Marine Amphibious Unit (MAU)

This is the smallest Marine assault force. It is composed of 2400 Marines, several armored vehicles and a helicopter squadron. There are usually two units forward deployed during peacetime. The forerunner of a larger force, the MAU is used to protect U.S. interests overseas until a larger force can arrive in the area. Approximately three to six amphibious ships are required to lift a MAU. [Ref. 4:p. 285]

5. Marine Amphibious Brigade (MAB)

This force is significantly larger than the MAU. It is composed of 14,000 Marines, 63 armored vehicles and artillery. The MAB has approximately 100 helicopters and 70 fixed wing aircraft. This force would be used to relieve a MAU which had been called into action. Approximately 20 amphibious ships are required to lift a MAB. [Ref. 4:p. 286]

6. Marine Amphibious Force (MAF)

This is the largest assault force. It is composed of 45,600 Marines, 70 tanks, 208 assault amphibious vehicles, and over 100 artillery pieces. The air wing is composed of 225 fixed wing aircraft and 230 helicopters. This force would be used for sustained combat against an entrenched enemy. Approximately 50 amphibious ships are required to lift a MAF. [Ref. 4:p. 288]

7. Military Sealift Command (MSC)

This is a Navy operated command which provides services for the armed services and other government agencies. All MSC ships are operated with civilian manned Civil Service crews. However, a small Navy detachment is usually carried to provide security and to operate the communication equipment. The MSC ships are recognizable by their T-hull designations. The MSC ships which are counted in the Navy's total ship count include the TAO (fleet oiler), TAE (ammunition ship), TAF/TAFS (combat stores), TAGO (ocean surveillance) and the TATF (fleet tug). [Ref. 5:p. 165].

8. Landing Craft, Air Cushion (LCAC)

A new high speed amphibious landing craft which can be embarked on LHAs, LHDs, LPDs and LSDs. Using an air cushion to glide along the surface of the water, the LCACs are faster than any other landing craft and are capable of carrying 60 tons of weight. Unlike previous landing craft, the LCACs can be launched from over the horizon, which provides additional protection to the amphibious ships. The LCAC program is one of the major construction programs under the Reagan Administration. [Ref. 6:p. 101]

9. Service Life Extension Program (SLEP)

SLEP is a program to modernize and to add an additional 25-30 years onto the service lives of certain ship categories. Originally, the program was intended for the steam powered aircraft carrier (CV). However, since the program has been successful, it will also be used on the aging Dock Transport (LPD) ships.

10. Warfare Areas

The Navy's missions include sea control and projection of power. To accomplish these missions, the Navy must be capable of performing in all five warfare areas:

a. Anti-Air Warfare (AAW)

This area involves the destruction of hostile aircraft and airborne weapons. The weapons may be launched from either air, surface, subsurface or land platforms.

b. Anti-Submarine Warfare (ASW)

This area will deny the enemy control of the sea by destroying the enemy's submarine force.

c. Anti-Surface Warfare (ASuW)

This warfare is accomplished by disrupting the enemy's sea lines of communication and denying the enemy the use of the sea. This involves the destruction and neutralization of enemy surface combatants and merchant ships.

d. Amphibious Warfare

The Navy will project its Marine forces into hostile territory through sea and air assaults. This warfare area also includes shore bombardment which comes from close air support from the carrier and Naval Gunfire Support (NGFS) from the surface combatants.

e. Mine Countermeasures

The primary purpose of mine countermeasures is to keep all friendly harbors open and to clear all amphibious assault lanes. This involves the destruction or neutralization of hostile mine fields.

II. THE NAVY'S FORCE OBJECTIVES

The goals of the "Fleet Expansion Program" were two-fold. First, the Navy would develop a "balanced" force structure. The total number for this aggressive force structure would be approximately 640 platforms. Secondly, the Navy would have a ship count of 600 by the end of the decade. Since this would be one of the most aggressive peacetime naval build-ups in the history of the United States, the expansion would have to be intricately planned and executed to balance the war fighting assets. In developing the Balanced Force Structure Program, the Reagan Administration would use the force structure in 1981 and extend its components proportionally to achieve a naval force capable of regaining maritime superiority. The force structure of 1981 would also be expanded to fulfill the current force requirements (see Table 1).

This chapter will present the goals for the new force structure as advocated by the Reagan Administration. A model of the Balanced Force Structure is presented by ship category in Table 2 for easy reference.

Furthermore, this chapter will examine each ship category in detail to determine its role in promoting the expansion concepts (see Table 1) and its role in balancing the war fighting assets.

TABLE 1

CURRENT NAVY FORCE REQUIREMENTS

	PEACETIME MARITIME STRATEGY	WARTIME MARITIME STRATEGY
	SIXTH FLEET	
CVBG	1.3	4
BBSAG	.3	1
URG	1	2
	SECOND FLEET*	
CVBG	6.7	4
BBSAG	1.7	1
URG	4	3
	SEVENTH FLEET**	
CVBG	2	5
BBSAG	.5	2
URG	1	4
	THIRD FLEET*	
CVBG	5	2
BBSAG	1.5	-
URG	4	1

* INCLUDES FORCES IN OVERHAUL ** INCLUDES INDIAN OCEAN FORCES
CVBG = CARRIER BATTLE GROUP. BSAG= BATTLESHIP SURFACE ACTION GROUP
URG = UNDERWAY REPLENISHMENT GROUP

TABLE 2

REAGAN'S BALANCED FORCE STRUCTURE OBJECTIVES

Ship Types	Number of Ships
Combatants	
Aircraft Carriers (CV/CVN)	15
Battleships (BB)	4
Battlegroup Escorts	
Destroyers (DD/DDG)	104
Cruisers (CG/CGN)	33
Frigates (FF/FFG)	101
Small Patrol Craft Combatants (PG/PHM)	6
Attack Submarines (SS/SSN)	100
Subtotal, Combatants	363
Amphibious Ships	
Command Ship (LCC)	2
Assault Transport (LKA)	5
Landing Ship Transport (LST)	20
Helo Assault Ship (LHA)	5
Helo Transport Ship (LPH)	0
General Purpose Assault (LHD)	12
Landing Ship Dock (LSD)	17
Dock Transport (LPD)	13
Subtotal, Amphibious	74
Mine Warfare Ships	
Minesweepers (MSO)	0
Mine Countermeasures (MCM)	14
Minehunters (MSH)	17
Subtotal, Mine Warfare	31
Replenishment Ships	
Station Ship (AOE)	8
Station Ship (AOR)	7
Oiler (AO/TAO)	29
Ammo. ship (AE/TAE)	16
Stores Ship (AFS/TAFS)	9
Subtotal, Replenishment	69

TABLE 2, Continued

Material Support Ships	
Destroyer Tender (AD)	9
Submarine Tender (AS)	8
Repair Ship (AR)	4
SSBN SUPPORT (AS/TAK)	6
Subtotal, Material Support	27
Fleet Support Ships	
Surveillance Ship (TAGOS)	18
Salvage Ship (ARS)	5
Submarine Rescue Ship (ASR)	6
Salvage/Rescue (ATS)	3
Fleet Tug (ATF/TATF)	7
Subtotal, Fleet Support	39
Strategic Submarine Forces	
Ohio Class Trident (SSBN)	11
Lafayette Trident	12
Lafayette Poseidon	13
Subtotal, Strategic	36
TOTAL	639

A. AIRCRAFT CARRIERS

The Reagan Administration asserts that the aircraft carrier is an essential ingredient for victory at sea. Posing an offensive threat, the carrier battle group forces the enemy into a defensive role for the protection of her homeland. With a mobile airfield, the United States Navy can extend its range of penetration deep into hostile territory. This permits the United States Navy to take advantage of tactical air strikes against the enemy and to maintain the vital sea lines of communication. Concurrently, the aggregate carrier force provides world wide coverage.

Furthermore, the carrier battle group (CVBG) is equally effective in peacetime. An impressive projection of power, the CVBG promotes foreign support for national policy and is "An important instrument of national power in a wide range of conflict scenarios, including Third World crises, and can be expected to remain so for the foreseeable future." [Ref. 7: pp. 6-7]

The carrier force hit its lowest point during the Carter Administration. The force consisted of 14 flattops, but only 12 of the ships were deployable carriers. The USS LEXINGTON (CVT-16) was an aviation training platform without war fighting capabilities, and the USS CORAL SEA (CV-43) was a contingency ship without an airwing. Furthermore, the number of deployable carriers would be further reduced by one carrier when SLEP began with the USS SARATOGA (CV-60) in

1980. SLEP would add approximately 10-15 years to the nominal 30 year life span of a carrier, but would reduce the carrier force by at least one carrier until the turn of the century. Eight carriers were scheduled for SLEP. Finally, the USS LEXINGTON (CVT-16), the USS MIDWAY (CV-41) and the USS CORAL SEA (CV-43) were scheduled for retirement in the early 1980s. Therefore, a presently deployable carrier would eventually have to replace the LEXINGTON, and another gap would exist on the decommissioning of the presently deployable MIDWAY.

The political atmosphere was equally turbulent for the carriers. Opposing viewpoints on the future of the carriers were heatedly debated in Congress, in the Ford and Carter Administrations, and between Congress and the administrations. Even the Navy was divided on the role and future of the carrier. The debates centered on issues such as large versus small, many versus few, conventional takeoff and landing (CTOL) or vertical/short takeoff and landing (VSTOL) based aircraft, and finally, whether the carrier was obsolete or not. The debates were so intense that even though funds were appropriated in FY 77 for advance procurement of long lead items for a new carrier, the funds were never released by the Ford or Carter Administrations. [Ref. 5:p. 48]

The debates were finally silenced by President Reagan. His decision, in face of the charge that the large conventional carrier was obsolete, was basically "Damn the torpedoes, full speed ahead!" A significant departure from the 12 carrier force maintained by previous administrations, the number of carrier battle groups would be increased to 15 to fulfill the current peacetime and wartime requirements. The requirements, shown in Table 1, called for a minimum of 7-two CVBGs and 1-one CVBG. Furthermore, President Reagan wanted the 15 CVBGs by 1984. [Ref. 4:p. 461]

The 15 carrier battle groups would serve as one of the foundations for expanding the fleet and building the Balanced Force Structure. With the expansion of the carrier force, additional surface combatants and attack submarines would be needed to provide the necessary defense in depth. Hence, the combatants and submarines would become the components of the carrier battle groups. Subsequently, the Mobile Logistics Forces and the other support forces would have to be increased to service the additional CVBGs. Likewise, more surface combatants would be required to protect and escort the additional support forces. This interdependence of the force structure will be seen throughout the remainder of the chapter, and serves as the basis for a balanced force structure.

B. SURFACE COMBATANTS

The formation of four surface action groups (SAG) would be another essential ingredient for President Reagan's force structure model. Each group would consist of a cruiser and four destroyers centered around a reactivated Iowa class battleship. Equipped with long range cruise missiles, girded with gun turrets which could rapidly project 2,000-pound shells more than 20 miles, and fortified with enough armor plate to fend off the strongest Soviet anti-ship missile, the battleship would be a deadly foe against any surface or airborne threat. The cruisers and destroyers would round out the balance by providing additional anti-air warfare (AAW), anti-surface warfare (ASuW), and anti-submarine warfare (ASW) coverage for the battleships. The SAGs would operate as offensive strike forces in moderate to high threat environments for which a carrier battle group is not available...". and "would be necessary to meet the Navy's three ocean commitment." [Ref. 4:p. 462]

Since the force level objectives were established to provide the necessary defense in depth for an assigned task, the emphasis on expanding the fleet was placed on total force capability instead of numbers of ships. [Ref. 8:p. 23] Therefore, in addition to CVBGs and SAGs, additional surface combatants would be needed to obtain the minimum balanced force structure capable of providing protection and support for Marine amphibious assaults, military convoys, and the Mobile Logistic Support Force.

Tables 3 and 4 present the surface combatant structure for an expanded fleet. In order to better understand the

TABLE 3

NAVY OBJECTIVE FOR SURFACE COMBATANT FORCE LEVEL

Force Types	BB	CGN	CG-47	DDG-51	DD-993	DD-963	FF/ FFG
15 Carrier Battle Groups	--	6	23	31	--	30	--
4 Surface Action Groups	4	--	4	12	--	--	--
Amphibious Force (1.5 MAF)	--	--	--	10	4	--	8
10 Underway Replenishment Groups	--	--	--	10	--	--	30
7 Convoys	--	--	--	--	--	7	63
Total	4	6	27	63	4	37	101

TABLE 4

AMPLIFIED NAVY OBJECTIVES FOR SURFACE COMBATANT FORCE LEVEL

FORCE TYPE	CV	BB	CG-47	CGN/DD/DDG	FF/FFG
2 CV CVBG	2	-	3	9	-
1 CV CVBG	1	-	2	4	-
SAG	-	1	1	3	-
1.5 MAF	-	-	-	14	8
URG	-	-	-	1	3
convoy	-	-	-	1	9

balanced structure concept, it should be noted that cruisers and destroyers are multi-purpose ships intended for high threat environments. On the other hand, frigates are open ocean escorts and are expected to operate in lower threat areas, such as convoy escort duty.

The author notes that the force structure desired by the Reagan Administration did not include small patrol craft combatants. Six Pegasus (PHM) hydrofoils appropriated during previous administrations, were scheduled to enter the fleet in the early 1980s. Armed with Harpoon anti-surface missiles and a rapid fire cannon, these patrol crafts were designed to conduct fast attack raids against enemy shipping. They would be similar to the concept of the fast attack raids by the World War Two PT boats. However the Reagan Administration has not shown enthusiasm for the PHM force. In an attempt to justify their existence, the Secretary of the Navy said that the PHMs "add a unique capability in the increasing important Caribbean basin, freeing up other naval assets for employment elsewhere." [Ref. 8:p. 23] In the author's opinion, this is the Navy's way of saying that it has not yet determined an appropriate role, outside of coastal defense, for the hydrofoils. This was shown several years later in congressional testimony when the Navy was unable to state the future role of the patrol crafts. [Ref. 8:p. 875] Therefore, the PHMs were not an essential element in the development of the balanced structure, and were excluded from the program. However, the PHMs will be evaluated in this research since they are counted in the total ship count.

C. ATTACK SUBMARINES

Primarily tasked with anti-submarine warfare and anti-shipping, the attack submarines (SS/SSN) perform many other valuable services for the fleet. Plowing secretly through the water, the attack submarines are extremely useful for such clandestine operations as intelligence gathering or minelaying. However, they are equally useful in conducting search and rescue missions and blockading choke points. Recently, more emphasis is being placed on the use of submarines in direct support of battle groups and amphibious operations.

In testimony before Congress, the Navy stated that the optimum force would consist of 131 attack submarines. However, the force level established by Carter was 90. Under the Reagan Administration, the force level was increased to 100 submarines to balance the expansion of the CVBGs and amphibious ships. [Ref. 4:pp. 216 & 461] Even though the new goal was still far below the optimum force level, it represented an absolute minimum which had been established in light of budgetary constraints.

D. AMPHIBIOUS SHIPS

The amphibious ships are specifically designed to project and support an invasion into hostile territory. Although each one of the seven different types of amphibious platforms performs a singular integral role in the assault, the amphibious force structure is aggregately designed to provide a balanced projection of power. Chapter Three will go into more detail on the role of each different platform. As for now, it is sufficient to note that a balanced assault requires approximately 50 amphibious ships to carry a Marine Amphibious Force (MAF), or approximately 20 ships to lift a Marine Amphibious Brigade (MAB).

The Balanced Force Structure concept is clearly demonstrated in an amphibious assault. The following scenario will briefly define the relationships. The amphibious force is composed of ships which are specially designed to support assaults from the air and/or from the sea. For the assault, the amphibious ships are supported by carrier battle groups (CVBG), surface action groups (SAG), underway replenishment groups (URG), minesweepers, and attack submarines. Enroute to the target area, the amphibious ships, CVBGs, and SAGs are refueled and reprovisioned by the URG. At the same time, the URG and the amphibious ships are defended by escort ships as shown in Tables 3 and 4.

Prior to the assault, minesweepers clear the operating areas to be used by the amphibious ships. At the same time, the beach is being bombarded by naval gunfire support (NGFS) from the SAG and by air strikes from the CVBG. At a predetermined time, the amphibious ships transit the mine-free lanes and launch their helicopters and landing craft. Throughout the entire operation, attack submarines are protecting the U.S. forces against hostile ships and submarines.

During the Carter Administration, the Navy had the capability to lift one MAF in the event of war. However, the Navy would have to exhaust its amphibious assets by assembling the entire amphibious force into one theater. This would even require the transfer of amphibious ships between the Atlantic and Pacific Oceans. In view of the lift capability limitation, Lt. Gen. John E. Miller, Deputy Chief of Staff for Plans, Policies, and Operations, testified that:

> A reasonable assurance (of success) force level would be the capability to lift the assault echelon of two MAFs simultaneously, thereby giving you a capability of a Marine amphibious force operation in each ocean. Since this would probably not be fiscally and realistically attainable in the near term, an interim goal would be to have the capability to lift an assault echelon of a Marine amphibious force, plus a Marine amphibious brigade. [Ref. 4:p. 290]

The Reagan Administration supported the Department of the Navy's opinion and incorporated the 1.5 MAF (one MAF and one MAB) expansion into the structure. This represented a revived interest in amphibious warfare since 1972, when the last amphibious ships were authorized. The amphibious force level presented in Table 2 lists the ultimate requirements for the 1.5 MAF lift capability.

E. MINE WARFARE FORCES

Although often overlooked, mine warfare poses a serious threat. It is the cheapest, easiest, and safest form of warfare. It can be effectively employed by Third World countries as well as developed nations. A harbor which is mined or even suspected of being mined can paralyze shipping and tie up essential battle assets. The recent mining of the Suez Canal by the Libyans demonstrates how a small country can hinder world-wide shipping. Furthermore, the Soviet Union realizes the value of mine warfare and maintains the largest stockpile of mines in the world.

The surface minesweeping capability of the United States Navy in 1981 rested in 25 old minesweepers (MSOs). Built in the 1950s, the maintainability and operability of these ships were greatly reduced by age. Furthermore, the low priority the Navy placed on mine countermeasures during the last ten years had affected their mission capability. By 1981, the techniques employed by the MSOs would counter older mines maintained by the Soviet Union, but they were not effective against recent mine warfare developments.

Three of the minesweepers were fully manned by active duty crews, and the rest were assigned to the Naval Reserve Force (NRF). The NRF minesweepers were Category B Mobilization assets and, therefore, not counted in the Navy's total ship count. Under President Reagan, four of the NRF ships would be decommissioned in 1983, while the service life of the other 21 ships would be extended until new replacement ships were built.

To rebuild the surface mine countermeasure force, the Reagan Administration pursued the development of the Avenger Mine Countermeasures (MCM-1) class and the Cardinal Minesweeper/Hunter (MSH-1) class. The Avenger class would incorporate the latest state-of-the-art techniques for deep water minehunting, minesweeping, and mine neutralization. The MCM would also be large enough to deploy. The smaller MSH would incorporate the same techniques as the MCM, but would only be used to augment the MCM in clearing U.S. harbors and coastal areas. According to the Administration, the minimum force would require 14 MCMs and 17 MSHs. [Ref. 4: pp. 528-529] After serving a year in the active fleet, the first eight MCMs and all of the MSHs would be transferred to the NRF to replace the aging minesweepers. Later, the NRF program would be expanded to include all MCMs.

F. MOBILE LOGISTICS FORCES

Control of the sea lines of communication requires the ability to conduct sustained operations at sea. For the United States Navy, the ability to conduct prolonged operations at sea is dependent on the replenishment ships and the replenishment daisy chain.

In the daisy chain concept, illustrated in Diagram 1, each battle group will be replenished by a multi-product station ship (AOE/AOR). These ships will provide fuel, ammunition, and stores in a one stop replenishment. This minimizes the time a ship is alongside the replenishment ship, and it also minimizes the vulnerability of the battle group as a whole. The AOEs and AORs will be resupplied by shuttle ships. The shuttle ships are the underway replenishment groups (URGs) which are composed of refrigeration/stores ships (AFS), ammunition ships (AE), and oilers (AO). They shuttle the supplies from forward ports to the task groups. The advanced ports will be resupplied by material brought in by merchant convoys.

DIAGRAM 1

MERCHANT forward CVBG
---> ---> URG ---> AOE/AOR ---> SAG
CONVOY port MAF

The Administration's force structure calls for 15 multi-product station ships and 10 underway replenishment groups. The force level requirements in support of the expanded fleet are listed in Tables 1 and 2. These requirements are the minimum force level objectives for the Balanced Force Structure Program. [Ref. 4:p. 464]

G. MATERIAL/FLEET SUPPORT SHIPS

The auxiliary support ships perform a variety of important missions which are not as glamorous as other missions, but are still essential to the fleet. Even though the fleet support ships are not directly involved in the battle group, they support the fleet by conducting towing, salvage, and submarine rescue operations. By the end of the 1970s. ocean surveillance had become a vital mission of the fleet support ships.

> T-AGOS ships are designed to support the mission requirements of the surveillance towed array sensor (SURTASS). Continuation of this program is absolutely critical to our maintaining an anti-submarine warfare advantage over the Soviet Navy, especially in light of the Soviet Alfa class SSN capabilities. It will continue to be a top Navy priority. [Ref. 9:p. 30]

By 1981. Congress had appropriated five T-AGOS ships.

The material support ships (AD/AS/AR) are repair tenders. They are an intermediate-level maintenance activity responsible for enhancing the battle groups' material readiness. They are responsible for providing repair, maintenance. and medical/dental support to deployed combatants. In peace or war, the mission of the material support ships is vital to the sustainability and mobility of the Navy's forward deployed battle groups.

Unlike the platforms previously discussed, the Reagan Administration did not delineate the force requirements for the material/fleet support ships. Instead, the pledge of the Administration [Ref. 10:p. 667] was to build enough support ships to complement the build-up of the combatant forces. Although the Navy did emphasize the ocean surveillance and the salvage force ships in testimony before Congress, the Navy would require a minimum of 18 T-AGOS ships. [Ref. 4:pp. 469-470]

Unlike the other force level objectives, the Chief of Naval Operations determined specific classes of ships for the salvage force. The future salvage force would consist of three Edenton class salvage and rescue ships (ATS) and five Bolster ASR-50 class salvage ships. The Bolster class will replace the aging ASR-38 class. [Ref. 11:pp. 620-728] Since the ASR-50 class salvage ships are intended as replacements, they cannot be considered force builders.

Since the Navy did not expand on the number or types of support platforms needed for a balanced force structure, with the exception of those already noted, the force structure model presented in Table 2 reflects the number of material and fleet support ships existing in the fleet in 1981. First, the use of the numbers will facilitate the comparison of the planned fleet to the actual fleet in succeeding chapters. Second, the number of support ships in the fleet in 1981 would have to be less than the minimum required to support the expanded fleet, since the Navy stated that a sufficient number of support ships would be built to meet force requirements. Therefore, the use of the existing ships as a minimum in the model will not create an undue bias against the Navy.

H. STRATEGIC SUBMARINE FORCES

The strategic submarine (SSBN) is an essential element in the deterrence posture of the United States. Unable to be detected, the SSBNs are considered the most survivable branch of the strategic triad. While the immobile land-based nuclear missiles and the highly visible Air Force bombers are highly vulnerable.

> Any attempted Soviet first strike would leave the TRIDENT force on station, ready to respond, and capable of inflicting unacceptable retaliatory damage. The continued invulnerability of our strategic submarines is crucial to our national security." [Ref. 1:p. 37]

As seen in Table 1, the expansion does not directly include the strategic submarine (SSBN) force as one of the goals for a balanced force structure. Neither does it support the 15 carrier battle group concept. However, the SSBN force must be considered since deterrence is a major role of the Navy, and the SSBN force is included in counting the 600-Ship Navy.

When presenting the proposed Balanced Force Structure Plan to Congress, the Reagan Administration did not specify the ultimate numerical objective for the SSBN platforms. This was due primarily because the SSBN program was presently undergoing significant changes. One major change was the recent delivery of the new Ohio class SSBN, which would provide a platform capable of carrying 24 launchers fitted for the new SLBM Trident I. Furthermore, 12 of the 31 aging **Lafayette** boats, equipped with 16 launchers for the Poseidon SLBM, would be retrofitted with the new Trident I missiles. Finally, the change involved the conversion of eight SSBNs to attack submarines (SSN). The eight boats were members of the **Ethan Allan** and George Washington classes, and carried 16 tubes for the outdated Polaris SLBM.

In addition to the facts presented in the preceding paragraph, the Navy would also have to consider the following information in determining the ultimate force level of the SSBNs. The Ohio class submarines would eventually replace the Lafayette class. The Lafayette class was originally scheduled to be decommissioned after 20 years service; however, the Navy determined that their life could be extended for another ten years. Therefore, the Lafayette class would be active until the mid-1990s. The extension created additional difficulties in determining the size of the SSBN force. First, since the number of launchers varied between the two classes, the Ohio class could not be built on a one-for-one replacement basis. Secondly, 12 of the ex-Poseidon boats were being converted to carry Trident I SLBMs. Therefore, the Lafayette class would be composed of Trident I boats and Poseidon boats which would be in service longer than anticipated. Also, the new force level would have to consider the effect of the loss of the Polaris boats.

This made it difficult for the Administration to determine the exact number of new Ohio Trident ships to build in the immediate future to complement or replace the remaining SSBN force, and remain within the Strategic Arms Limitation Treaty. Furthermore, the Navy would have to consider future political and detente considerations, and the development of the new Trident II, which would carry more warheads and require fewer launchers.

When the Balanced Force Structure program was presented to Congress, the Navy was unable to deal with all the different variables in determining the ultimate force goal for the SSBN force. Therefore, the Administration promulgated a shipbuilding plan which had been pursued by the Carter Administration. Carter had called for appropriations for three Ohio SSBNs every two years. Unsatisfied with the cost overruns, late deliveries, and outstanding claims in the Ohio shipbuilding program, Congress had granted funding for only one boat annually. The Reagan Administration had also called for three submarines every two years beginning with the FY 85 budget request.

Unable to gain congressional support to build three ships per two years, the Reagan Administration conceded to one ship per fiscal year. Therefore, since nine ships had been previously authorized, the total number of Ohio SSBNs appropriated by 1990 would be 17 boats.

The force goal stated in Table 2 is based on the revised shipbuilding plan which called for 17 Ohio class SSBNs to be active or under construction by 1989. Assuming the construction of an SSBN is six years, there will be 11 Ohio submarines in the fleet by the end of the decade.

Since 12 ex-Poseidon boats would be modified for the TRIDENT I, the remaining Poseidon boats would have to be retired to compensate for the oncoming Ohio class. Because there were ten Polaris and 31 Poseidon submarines in the 1970s, the total number of launchers was 656. Based on the assumption that the Administration would maintain approximately the same number of launchers throughout the 1980s, 1.5 Poseidon submarines would have to be decommissioned for every Ohio Trident submarine that entered the fleet. Therefore, the force goal by 1989 would be 11-Ohio, 12-ex-Poseidon and 13-Poseidon submarines.

I. SUMMARY

President Reagan laid the foundation for the expansion of the United States Navy. The cornerstones for the foundation were 15 carriers; four battleships; 100 attack submarines; 1.5 MAF lift capability; and a sufficient number of support forces. In building upon this foundation, the right mix of platforms would have to be expanded to balance the war fighting assets. This resulted in the development of Reagan's Balanced Force Structure model. To achieve maritime superiority, the Navy would have to increase its number of ships in accordance with the model.

One of the main principles which has been shown in this chapter is the interdependence of the various task groups. Additional carriers require additional combatants for defense, and additional logistics ships for sustenance. Likewise, placing more ships in the water requires more submarine killers; therefore, additional attack submarines and ASW surface platforms must be built. There are many more examples, but the basic point is that this interconnection is evident in all the conventional battle areas. Like a jigsaw puzzle, if a piece is missing then the balanced force structure is not complete.

The final point to note in this chapter is that the force structure model represents a minimum force level to regain superiority. As seen throughout the chapter, the Navy cannot build an optimum force level primarily because of budgetary constraints. Therefore, the force model is extremely stringent. This has strong implications for the Navy. If the shipbuilding program in a ship category is delayed, reduced, or cancelled so that the ship category does not meet the minimum level established in the model, then other task groups will be adversely affected.

III. BUILDING THE FORCE STRUCTURE DURING THE 1980s

As seen in the last chapter, there is an important interrelationship of the different ship categories which must be considered in planning the force structure. This is quite evident in the development of the model of the Balanced Force Structure promoted by the Navy under President Reagan. The model provides the guidelines to promote the expansion of the fleet while controlling force equilibrium.

Table 5 compares the Force Structure Model against the Summary of U.S. Naval Forces in 1981. This explicitly shows that it would require a massive build-up to achieve the number of ships advocated by the model. Since the 1980s would witness one of the most aggressive expansions of the Navy during peacetime, the execution of the shipbuilding programs would be extremely important in determining the successful achievement of the balanced force. This would be especially important in light of the magnitude of the expansion and the potential impact of future budgetary constraints.

Therefore, this chapter will examine how the Reagan Administration planned on expanding the fleet and what actually happened up to 1986. Based upon this information and the shipbuilding time assumptions presented in

TABLE 5

COMPARISON OF THE SUMMARY OF U.S. NAVAL FORCES IN 1981 WITH THE BALANCED FORCE STRUCTURE MODEL

Ship Type	Number of Ships OBJECTIVE	Number of Ships 1981
Battle Forces		
Aircraft Carriers (CV/CVN)-deployable	15	12
Surface Combatants		
Battleships (BB)	4	0
Cruisers guided missile (CG/CGN)	33	27
Destroyers (DD) *	37	43
Destroyers guided missile (DDG)	67	39
Frigates (FF/FFG) *	101	66
Attack Submarines (SS/SSN)	100	79
Patrol Craft Combatants (PHM)	6	6
Subtotal, Combatants	363	272
Amphibious Ships		
Command Ship (LCC)	2	2
Assault Transport (LKA)	5	5
Landing Ship Transport (LST) *	20	20
Helo Assault Ship (LHA)	5	5
Helo Transport Ship (LPH)	0	7
General Purpose Assault (LHD)	12	0
Landing Ship Dock (LSD)	17	13
Dock Transport (LPD)	13	13
Subtotal, Amphibious	74	65
Mine Warfare Ships		
Minesweepers (MSO)	0	3
Mine Countermeasures (MCM)	14	0
Minehunters (MSH)	17	0
Subtotal, Mine Warfare	31	3

TABLE 5 continued

Replenishment Ships		
Station Ship (AOE)	8	4
Station Ship (AOR)	7	7
Oiler (AO/TAO)	29	20
Ammo. ship (AE/TAE)	16	13
Stores Ship (AFS/TAFS/TAF)	9	8
Subtotal, Replenishment	69	52
Total, Battle Forces	537	392
Support Forces		
Material Support Ships		
Destroyer Tender (AD)	9	9
Submarine Tender (AS)	8	8
Repair Ship (AR)	4	4
SSBN SUPPORT (AS/TAK)	6	6
Subtotal, Material Support	27	27
Fleet Support Ships		
Surveillance Ship (TAGOS)	18	0
Salvage Ship (ARS)	5	6
Submarine Rescue Ship (ASR)	6	6
Salvage/Rescue (ATS)	3	3
Fleet Tug (ATF/TATF)	7	7
Subtotal, Fleet Support	39	22
Total, Support Forces	66	49
Strategic Submarine Forces		
Ohio Class Trident (SSBN)	11	0
Lafayette Trident (SSBN)	12	0
Lafayette Poseidon (SSBN)	13	31
Benjamin Franklin Polaris (SSBN)	0	2
Total, Strategic Forces	36	33
Total, U.S. Naval Forces	639	474

* Includes Category A Mobilization Forces

Chapter One, the force structure will be developed for 1989. Although, one of the ultimate objectives is to determine whatthe Summary of the U.S. Naval Forces will be in 1989, any future funding after FY 86 will not be significant for this chapter since ships appropriated after FY 86 would not enter the fleet until the early 1990s.

The data used to examine the history came primarily from the _Jane's Fighting Ships_ series. The data sheets used to assimilate the information are presented in Appendixes G-N, while a condensed version is presented in Table 6 for easy reference and comparison.

A. FORCE DEVELOPMENT

1. _Aircraft Carriers_

The Administration called for an immediate build-up of the 15 carrier force. In 1981, there were 12 deployable carriers and two ships under construction. The USS CARL VINSON (CVN-70) had been appropriated in the early 1970s and would be in the fleet by 1982. After an intense battle with the Carter administration, The USS THEODORE ROOSEVELT (CVN-71) had been appropriated in FY 80, but would not be completed until 1986. Because the two carriers undergoing construction would not expand the force, the Reagan Administration planned on using other methods to expand the number of battle groups by 1984. In the short run, the Administration planned on returning the USS CORAL SEA (CV-43)

TABLE 6

SUMMARY OF U.S. NAVAL FORCES

Number of Ships Ship Type	1981	1986	1989
Battle Forces			
Aircraft Carriers (CV)-deployable	9	9	9
Nuclear Carriers (CVN)	3	5	5
Subtotal	12	14	14
Surface Combatants			
Battleships (BB)	0	3	4
Cruisers guided missile (CG)	18	24	37
Nuc Cruisers guided missile (CGN)	9	9	9
Subtotal, CG/CGN	27	33	46
Destroyers (DD)	43	31	31
Destroyers guided missile (DDG)	39	37	38
Subtotal, DD/DDG	82	68	69
Frigates	59	51	51
Frigates guided missile	7	46	39
Subtotal, FF/FFG	66	97	90
Patrol Craft Combatants (PG/PHM)	6	6	6
Submarines			
Attack Submarines (SS)	5	4	4
Nuclear Attack Submarines (SSN)	74	97	99
Subtotal, SS/SSN	79	101	103
TOTAL, COMBATANTS	272	322	332
Amphibious Ships			
Command Ship (LCC)	2	2	2
Assault Transport (LKA)	5	5	5
Landing Ship Transport (LST)	18	18	18
Helo Assault Ship (LHA)	5	5	5

TABLE 6 continued

Helo Transport Ship (LPH)	7	7	6
General Purpose Assault (LHD)	0	0	1
Landing Ship Dock (LSD)	13	9	13
Dock Transport (LPD)	13	13	13
Subtotal, Amphibious	63	59	63
Mine Warfare Ships			
Minesweepers (MSO)	3	3	3
NRF MSOs (Cat B)*	22	18	2
Mine Countermeasures (MCM)	0	0	11
Minehunters (MSH)	0	0	5
Subtotal, Mine	3	3	19
Replenishment Ships			
Station Ship (AOE)	4	4	4
Station Ship (AOR)	7	7	7
Oiler (AO/TAO) **	19	18	18
Ammo. Ship (AE/TAE)	13	13	13
Stores Ship (AFS/TAFS/TAF)	8	11	11
Subtotal, Replenishment	51	53	53
TOTAL, BATTLE FORCES	389	437	467
Support Forces			
Material Support Ships			
Destroyer Tender (AD)	9	9	9
Submarine Tender (AS)	8	8	8
Repair Ship (AR)	4	4	4
SSBN Support (AS/TAK)	6	6	6
Subtotal, Material	27	27	27
Fleet Support Ships			
Surveillance Ship (TAGOS)	0	8	12
Salvage Ship (ARS)	6	6	4
Submarine Rescue Ship (ASR)	6	6	2
Salvage/Rescue (ATS)	3	3	3
Fleet Tug (ATF/TATF)	7	7	7
Subtotal, Fleet	22	30	28
TOTAL, SUPPORT FORCES	49	57	55

TABLE 6 continued

Strategic Submarine Forces			
Ohio Class Trident (SSBN)	0	8	10
Lafayette Trident	0	12	12
Lafayette Poseidon	31	16	13
Franklin Polaris	2	0	0
TOTAL, STRATEGIC FORCES	33	36	35
Mobilization Forces (Category A)			
Surface Combatants			
Destroyers (DD)	9	1	1
Frigates (FF)	0	8	8
Frigates guided missile (FFG)	0	9	18
Amphibious Warfare Ships			
Landing Ship Transport (LST)	2	2	2
TOTAL, CATEGORY A	11	20	29
TOTAL, U.S. NAVAL FORCES	482	550	586

* Not counted in Navy's total ship count. The ship count for 1989 is based on the following assumptions. The MCMs and MSHs, which were funded by FY 86, will be operational and will relieve the NRF MSOs on one-for-one basis.

** The number of ships in 1989 is based on the following assumptions. If the two AOs and the 11 TAOs are decommissioned at their 40 year mark, of which the two AOs and five of the TAOs have already passed, then the number of AO/TAO should be 13 in 1989. If the older ones remain in the fleet then the total will be 26. The number 18 above is based on the assumption that the older ones will be replaced on a one-for-one basis. Therefore, of the 18 in 1989, five will be of the new Cimarron class, seven of the HJK class, and six of the old Neosho and Mispillion classes.

to deployable status and on reactivating the USS ORISKANY (CV-34). The ORISKANY was a World War Two vintage carrier which had been decommissioned in 1976. The ORISKANY would have a very limited role since she was too small to carry the Navy's most modern warplanes. Also, the Administration planned on delaying the retirement of the MIDWAY and the LEXINGTON. Even though the LEXINGTON was not a combatant and not counted in the total number of carriers, if she were decommissioned, a deployable carrier would have to replace her. Under Reagan's plan, the Navy would have 14 carriers by the middle of FY 84, which does not include the carrier undergoing SLEP.

As the plan developed, the service lives of the CORAL SEA, MIDWAY, and LEXINGTON were extended. An air wing was established for the CORAL SEA and the CARL VINSON was active by 1982. However, the reactivation of the ORISKANY received a heavy broadside attack from Congress. Facing strong opposition from the Senate Armed Services Committee and the Appropriation Committee from both houses, the request for the ORISKANY was scuttled seven months after it had been proposed. [Ref. 12:p. 315]

Even though the Administration did not meet its goal of 15 carriers by 1984, it was instrumental in reaching 14 deployable carriers by 1986. The force level was achieved only by the extension of the service lives of three carriers, and the refitting of the CORAL SEA. Furthermore, the Navy received appropriation for two more nuclear carriers in the FY 83 budget, which was an amazing feat considering that the future of the carrier was uncertain only three years earlier. Since the additional ships will not be delivered until the 1990s and there are no immediate plans to decommission any carriers, the Navy will end this decade with a 14 deployable carrier battle force. This count does not include the ship undergoing SLEP and the LEXINGTON.

2. Battleships

The final reactivation of the battleship force was a product of the Reagan Administration. The Navy previously attempted to obtain the funds to re-commission the USS NEW JERSEY in 1980, and even received the approval from the FY 1981 Authorization Bill. However, the Senate vehemently argued that expenditures for an old battleship could more effectively be used elsewhere, and funding was never granted. [Ref. 13:p. 195]

When President Reagan announced his program to rebuild the fleet, the battleship became an integral component for the Expansion Program, and the Navy received the needed congressional support. The Navy planned to reactivate four Iowa class battleships, which would serve as the centerpiece for the four surface action groups (SAGs) proposed in the build-up. The battleship was also justified on the grounds that it would fill the defense gap until the

15 carrier battle groups were in service in the mid-1990s. [Ref. 12:p. 204]

As can be seen from the Appendixes, the Administration planned on funding the battleships in the next four fiscal years. The NEW JERSEY, IOWA, MISSOURI, and WISCONSIN would be funded in FY 82, FY 83, FY 84, and FY 85 respectively. All reactivated battleships would be in the fleet no later than 1987. This aggressive goal would require advanced funding to stay on schedule.

The FY 81 Supplemental and the FY 82 Appropriation Bills granted the funds to re-commission the USS NEW JERSEY (BB-62) and to buy parts in advance for the reactivation of the USS IOWA (BB-61). As planned, full funding was granted in the FY 83 for the USS IOWA; however, the Senate refused to grant the funds needed for the advanced procurement of components to be used in the modernization of the USS MISSOURI (BB-63). [Ref. 14:p. 280] This delay made the future for the remaining two battleships look dreary, as demonstrated in the constant rescheduling of the MISSOURI and WISCONSIN during the next three fiscal years (Appendixes C-E).

Undaunted by the heavy seas created by Congress, the Navy used funds generated by contract savings to fully fund the reactivation of the USS MISSOURI in FY 85. The Navy used the congressional support, fueled by their determination, to receive full funding for the USS WISCONSIN during the next fiscal year. [Ref. 2:p. 19] By late 1986, three battleships were back in service, with the delivery of the fourth and final battleship scheduled within the next two years.

3. Cruiser Guided Missile/Nuclear Cruiser Missile

The Balance Force Structure Program called for 33 cruisers (CG/CGN) to operate in a high threat area and to provide area defense for the battle group against air, surface, and submarine threats. In 1981, the force consisted of 27 guided missile cruisers. Eighteen of the cruisers were steam powered ships built during the mid-sixties. The remaining nine ships were nuclear and varied in age. Six ships in the Virginia and California classes had been built in the late 1970s, while the other three nuclear cruisers were built in the early 1960s. With the last of the nuclear cruisers completed in 1978, the U.S. Navy began building the Ticonderoga (CG-47) class guided missile cruiser. The lead ship entered the fleet in 1983. This ship class has greatly increased the anti-air warfare capability and survivability of the cruiser force. Equipped with the new Aegis system, this class was designed to counter the anti-ship missile threat of a high density environment. It is capable of simultaneously detecting several hundred targets and intercepting over a dozen incoming high speed missiles. [Ref. 6:pp. 90-106]

Since the cruisers (CG/CGN) built in the 1960s will be retired in the 1990s, the Ticonderoga class will eventually serve as replacements and as the core of the cruiser force. [Ref. 15:p. 108] The Administration's balanced force structure requires a total of 27 Aegis cruisers, of which 19 have been procured. In 1986, there were six ships in commission, and 13 under construction.

Based on an average shipbuilding time of four years, there will be 19 CG-47s in commission by the end of the decade.

4. Destroyers/Destroyers Guided Missile

The destroyer fleet would have to be increased to fulfill the additional requirements created by the increased number of carriers: formation of four new SAGs; and the expansion of amphibious and support forces. The balanced force program called for at least 37 destroyers (DD) and 67 guided missile destroyers (DDG). In 1981, shortly after the promulgation of the Fleet Expansion Program, the Navy had nine Naval Reserve Force (NRF) destroyers, 43 DDs and 39 DDGs. Even though it appeared that there would not have to be much of a build-up to meet the Navy's goals, many of the ships were outdated and ready for retirement. The following sections will illustrate the development of the destroyer navy through the Recovery Program.

Although the opinion is generally accepted that the destroyer (DD or DDG) is the work horse of the fleet and is tasked with all warfare missions, there is a distinction between the destroyer and the guided missile destroyer. The

DDG carries guided missiles for anti-air warfare, whereas the DDs lean towards anti-submarine warfare platforms. Therefore, the DD is not altogether interchangeable with the DDG. Because of this distinction, the destroyers will be treated separately from the guided missile destroyer.

The destroyer force consisted of 13 Forrest Sherman class DDs and 30 Spruance class DDs. The Forrest Sherman class ships were built in the 1950s and were nearing retirement. Their primary mission was originally anti-air warfare, but had been changed to naval gunfire support because of the technological development of air warfare since the 1950s. Their armament consisted of three gun mounts and six torpedo tubes; however, several of the ships had been modified with the installation of an anti-submarine rocket (ASROC) launcher. There were five other Forrest Shermans which were not counted in the DD force, since four of the Shermans were previously converted to guided missile destroyers and the other ship was transferred to the NRF in 1980. These ships will be discussed later.

To supplement and eventually replace the aging destroyers, the Spruance class destroyer was developed during the 1970s. The Spruance class, armed with modern anti-submarine rockets and anti-ship missiles, was also intended primarily for anti-submarine and anti-surface warfare. Congress had fully appropriated all 31 Spruance destroyers by the middle of the 1970s, and by 1981, 30 were in commission.

The Forrest Sherman class was expected to remain in the fleet until the middle of the decade. However, in 1982, Congress approved a plan to retire the 13 Forrest Sherman destroyers ahead of schedule. This action, in conjunction with the retirement of four converted Forrest Sherman DDGs and five of the oldest amphibious ships, would save the government $123.2 million dollars. This was in contrast with the authorization bill which had retired only the 13 destroyers. [Ref. 14:p. 288] Around the same time that the final Spruance class destroyer entered the fleet in 1983, the USS MULLINNIX (DD-944), the last great Forrest Sherman "gun ship" was decommissioned. As seen in Appendixes A-F, the Reagan Administration did not plan on building any more DDs. This can be explained by two reasons. First, the Administration was promoting the development of the DDGX, an experimental guided missile Aegis destroyer which was later designated as the Arleigh Burke (DDG-51) class. Second, the balanced force structure required more destroyers with anti-air warfare capability since many of the current DDGs were nearing retirement. Therefore, the total number of destroyers (DDs) would remain at 31 throughout the rest of the decade.

In 1980, the USS EDSON (DD-946), a Forrest Sherman class destroyer, was transferred to the NRF. This brought the total number of NRF destroyers to 9 in 1981. Although the EDSON was not decommissioned with the other Forrest Shermans in 1983, the other eight NRF destroyers were decommissioned in the next few years. The EDSON, the only NRF DD still in commission, is included in the total ship count since it is a Mobilization Category A ship.

In 1981, the guided missile destroyer (DDG) force consisted mostly of ships which were nearing their retirement age. Only two of the 39 ships were recent additions to the fleet. Of the remaining 37 ships, four were converted Forrest Sherman class DDGs, and the rest were members of the aging DDG-2 Coontz and the DDG-37 Adams classes.

The two new recent additions were members of the Kidd (DDG-993) class. This ship was built on a Spruance hull, but was modified for guided missiles. Four ships of this class were originally ordered by the pro-American Iranian government. After the Iranian conflict, the U.S. government procured the contracts for the four ships. The U.S. Navy does not plan on building any more Kidd class DDGs.

In 1982, the final two Kidd class destroyers entered the fleet, which increased the force size to 41 guided missile destroyers. However, a year later, the four Forrest Sherman modified DDGs were decommissioned, which brought the total down to 37 DDGs. There will be no more further gains or losses until 1989.

Prior to the Reagan Administration, plans were being developed for a new class of guided missile destroyer (DDGX). This class, later designated the Arleigh Burke class, would incorporate the new phased array radar which can acquire many air contacts simultaneously. This destroyer would be a complement to the Aegis cruiser, and would balance the Reagan Administration's proposed force structure. The lead ship was fully funded in FY 1985 with an expected completion date of 1989. As seen in Appendixes D-F, the Administration planned an aggressive shipbuilding schedule for the rest of the class. The Navy plans to build a total of 29 Arleigh Burke class guided missile destroyers. However, these ships will not be force builders since they will be essentially a one-for-one replacement for the Coontz and Adams classes. which will begin retirement during the 1990s. [Ref. 16: p. 654]

5. Frigates/Frigates Guided Missile

The frigate/frigate guided missile (FF/FFG) force in 1981 consisted of a total of 66 ships. This was a far cry from the 101 frigates needed to complement the balanced force structure. However, there were 114 convoy escorts within the next five years. This growth was essentially accomplished by budget appropriation prior to the Reagan Administration, and was primarily the result of Congressional pressure to rejuvenate the convoy escort force.

There were 59 fast frigates (FF) in 1981. These ships were built during the late 1960s and the early 1970s, and would be operational until the late 1990s. Equipped with ASROC launchers and helicopters, the fast frigates were primarily designed for anti-submarine warfare. With the exception of two gun mounts, the fast frigates did not have a modern hard kill weapon system for anti-air warfare.

In an effort to rebuild the NRF, eight frigates were transferred to the NRF Mobilization Category A Force since 1981. [Ref. 1:p. 34] Since there are no present plans to build, decommission or transfer any more of the FFs, the total number of ships in 1989 will be 51 active frigates and eight NRF frigates.

In addition to the FFs, there were six ships of the FFG-1 Brooke class in commission in 1981. Armed with an ASROC launcher, the Brooke class also carried a surface-to-air missile launcher. This provided the convoy with anti-submarine protection, as well as an area defense system. The FFG-1 class was built during the late 1960s and would remain operational until the late 1990s.

The rapid growth in the escort force during the 1980s came from the FFG-7 Oliver Hazard Perry class. The Perry class represented a departure from the previous role of the frigates and guided missile frigates. Like the Brooke class, the FFG-7 was specifically built to supplement the open-ocean air defense of the convoy escorts. However, the Perry class as a far greater anti-air and anti-surface warfare capability than the previous classes. Furthermore, the Perry class was also different from the other escorts in that the FFG-7 had a reduced anti-submarine warfare capability. Unlike the other FFs and FFGs, the Perry class does not carry an ASROC launcher.

Ever since the lead ship first entered the fleet in 1977, Congress took a special interest in the FFG-7 program. This was partially due to the well-rounded warfare capability of the FFG-7s, and the desire to improve the NRF. Unsatisfied with the Navy's proposal to build a frigate (FFX) (shown in Appendix A) for the NRF, Congress strongly recommended that the Navy build more FFG-7s and transfer the older ones to the Reserves. [Ref. 13:p. 189] In compliance with congressional desires, the Navy dropped the FFX program and planned on building 51 ships. Eighteen of the FFG-7s were scheduled to be transferred to the NRF.

By 1981, Congress had authorized a total of 45 ships. [Ref. 4:p. 526] During the next few years, the last six ships were ahead of the Navy's schedule. [Ref. 17:p. 195]

After the last ship was appropriated in FY 84, Congress pressed the Navy to develop a guided missile frigate which would be equipped with an Aegis type radar. [Ref. 18: p. 482] However, the Navy halted all research for a new guided missile frigate in 1986, because all the design options called for a ship which would be bigger than the newest class of guided missile destroyers. [Ref. 15:p. 108]

Therefore, the convoy escort shipbuilding program came to a conclusion. The final count of FFG-7s in 1986 was 40 ships in commission, nine transferred to the NRF, and two undergoing construction. The last two ships will be completed by 1988, and the other nine FFG-7s will eventually be transferred by 1989.

6. Attack Submarines

To immediateely expedite the growth in the SSN forces, the Reagan Administration continued the conversion of eight strategic submarines (SSBN) into attack submarines. These SSBNs were being phased out by the introduction of the new Ohio class strategic submarines into the fleet.

The ex-SSBN conversion increased the force numbers but only for a short period. Converted from 1980 to 1982, six of the eight ex-SSBNs served for approximately two to three years and then were decommissioned. The short life span of the ex-SSBNs was based on the fact that the ex-SSBN could not perform like an SSN. Designed differently, the ex-SSBNs were larger, noisier, slower, and less effective. [Ref. 19:p. 66] By the end of 1984, all ex-SSBNs were retired except for two boats which were converted to troop transports to replace one aging diesel submarine. The ex-SSBN troop transports will operate throughout the 1990s.

In 1981, the Navy had 79 attack submarines. Of this total, five of the submarines were diesel boats, six were ex-SSBNs, and the rest were SSNs. The most recent class of submarines was the Los Angeles SSN-688 class. With 11 boats in the fleet and 26 under construction by 1981, the SSN-688 class was and would be the only class to be built from 1975 to 1991. Twenty-three of the boats under construction would enter the fleet between 1981 and 1986.

With the addition of the 23 SSN-688 class submarines and two ex-SSBNs, and the retirement of six ex-SSBNs and 1-SS, the Navy had 97 attack submarines in 1986. As previously noted. 26 submarines were appropriated prior to the Reagan Administration. Upon the commissioning of the last three boats appropriated by previous administrations within the next year, the Navy would have over 100 submarines. Therefore, the expansion must partially be attributed to previous administrations. However, the sustainment of the goal must be attributed to the Reagan Administration. According to the Navy, the 100 ship goal could be maintained only with the appropriation of three to four ships annually, which was a departure from past practices in the 1970s. [Ref. 4:p. 461] As seen in Appendixes A-F, the Reagan Administration gradually increased the annual budget requests to four ships by FY 86. The Navy hopes to continue the rate of building three to four ships throughout the rest of the century.

In 1986, 18 SSN-688 class boats were under construction, of which ten will enter the fleet by 1989. This will increase the total number of boats to 108. Assuming that the submarines will be decommissioned at the end of their 30 years of service, four Skate class submarines (SSN) will be decommissioned by the end of the decade. Therefore, the Navy will have 103 battle force attack submarines by 1989.

In addition to the increased procurement of submarines, the Navy was also granted funding to develop a new submarine class. The new Seawolf SSN-21 class has been designed to counter the present and future Soviet submarine threat. Full production of the Seawolf class is scheduled to begin in FY 91. Since this class is intended to replace an older class, it will not be a force builder.

7. Amphibious Warfare

In 1981, the Marine Corps had the personnel and equipment to simultaneously conduct two MAF assaults in two different theaters, but were limited by the transportation capacity of the Navy. With barely enough assets to lift only one MAF, the Navy would have to assemble all its amphibious ships into one ocean. Even under peacetime conditions, the Navy was hard pressed to meet its commitments to continuously deploy three Marine Amphibious Units. Under the program to regain maritime superiority, the number of amphibious ships would be increased to support a MAF and a MAB, granting the

United States the ability to concurrently project power into hostile territory in two different oceans.

In expanding the amphibious force, the Navy was also faced with the impending retirement of over half of the Dock Landing Ships (LSD) in the 1980s, and the block obsolescence of the remaining amphibious force in the 1990s. [Ref. 4: p. 768] In total, 60 of the 65 amphibious ships in commission in 1981 would reach retirement age by the year 2000. Therefore, the Navy would have to program replacements as well as force builders to meet the new increased lift requirements.

Secretary Lehman stated that "If it (ship) delivers before 1989, it is going to build the 600-Ship Navy and after 1989 it is a maintainer (of the 600 ship count)." [Ref. 16: p. 643] Using this rule of thumb, the Navy used two programs to expand the amphibious force and two other programs to maintain the force. These programs will be discussed in the following appropriate sections.

a. Command Ships

The USS BLUE RIDGE (LCC-19) and the USS MOUNT WHITNEY (LCC-20) are the only ships constructed specifically for the amphibious warfare command and control. These two ships were built in the early 1970s and will remain in commission until the turn of the century. The Reagan Administration has not promulgated any future shipbuilding plans for this category of ship.

b. Amphibious Cargo Ships

The five Charleston class cargo ships (LKA) were specifically designed to carry heavy equipment and material for the amphibious assault, and has limited capability to transport troops. The five ships were built from 1968 to 1970. Based on a 30 year life span, they will remain in service until the turn of the century. The Reagan Administration has not promulgated any future shipbuilding plans for this category of ship.

c. Tank Landing Ships

The tank landing ship (LST) transports tanks and other vehicles used in the assault. This is the only ship in the Navy which deliberately "beaches" itself. When a beachhead has been established, the LST connects a ramp, which extends from its bow to causeways running to the beach. Thereby, tanks and other heavy vehicles are offloaded.

In 1981, there were 20 Newport class LSTs, of which two of the ships were later assigned to the NRF. These ships were commissioned in a four year span beginning in 1969. They also have a 30 year service life and will be operational until 2000. No more ships of this category are scheduled in the near future.

d. Amphibious Assault Ships

Principally a helicopter carrier for air assault, the amphibious assault ships (LHA) also have well decks for amphibious landing craft and tractors. In launching the landing crafts, the well decks are flooded and the troop landing crafts escape to the sea for their assault onto the beach. The LHA combines the features of the LPH helicopter carriers with the well decks of the LSDs, enabling the LHAs to conduct airborne and seaborne assaults. There are five ships in this category which are recent additions to the fleet. Since the design of the LHA is being used in the development of the new general purpose amphibious assault ship (LHD), no more LHAs will be constructed. The LHAs will reach their 30 year life span around 2008.

e. Helicopter Assault Ship

The helicopter assault ships (LPHs) are helicopter carriers designed to project aerial assaults. The same size as World War Two aircraft carriers. the LPHs are the first platforms ever constructed to specifically employ helicopters in the assault role. Being the forerunners of the LHAs, the LPHs are smaller and are not capable of carrying amphibious landing craft. Built during the 1960s, the seven Iwo Jima class LPHs would serve as one of the mainstays of the amphibious force until they reach block obsolescence during the 1990s.

f. Multi-Purpose Amphibious Assault Ship

The multi-purpose assault ship (LHD) is one of the programs promulgated by the Reagan Administration to expand the fleet's capabilities. The LHD incorporates the features of the LPH and the LHA, while adding its own new dimensions to the amphibious warfare. Like the LPH and LHA, the LHD will employ helicopters in aerial assault, but the LHD's flight deck will also support the Marine's Harrier V/STOL (vertical/short takeoff and land) aircraft. The LHD can also be converted into a V/STOL aircraft carrier for sea control and tactical air support. [Ref. 6:p. 100] The LHD is also designed to carry the new high speed air cushion landing craft (LCAC).

The Navy plans on building a total of 12 LHDs. Five ships will be used to augment the fleet's lift capabilities, while the other seven ships will replace the aging LPHs on a one-for-one basis. [Ref. 11:p. 688]

The first two ships of the class were appropriated in FY 84 and FY 86. The USS WASP (LHD-1), the lead ship, will enter the fleet in 1989, while the second ship is scheduled to be commissioned in 1991. [Ref. 2:p. 40]

g. Dock Landing Ship

The dock landing ship (LSD) was the first category of ships to have the well deck, and thereby was the forerunner for the LHA, LHD and LPD. Principally designed to carry cargo and landing craft, the LSDs also have removable helicopter decks.

By 1981, there were 13 LSDs in the fleet. Eight of the ships belonged to the Thomaston (LSD-28) class, which were scheduled for retirement in the 1980s. [Ref. 8: p. 768] The remaining five LSDs (Anchorage LSD-36 class) were built in the early 1970s and would be operational until the turn of the century.

In the late 1970s, the Navy proposed a new class of LSDs to replace the Thomaston class. The Carter Administration rejected the proposal, but submitted to congressional pressure to retain the lead ship, USS WHIDBEY ISLAND (LSD-41), in the FY 81 budget request. [Ref. 6:p. 100] Likewise, Congress appropriated the funds to build the second ship in the LSD-41 class, even though it had not been requested in Reagan's FY 82 budget request. [Ref. 12:p. 229] Thereafter, an additional ship received funding until FY 86, when funds were appropriated for the last two ships. Thereafter, the Reagan Administration supported the LSD-41 program and included it in the shipbuilding plan. By 1986, a total of eight ships were appropriated to replace the LSD-28 on a one-for-one basis.

From FY 83 to FY 86, the Navy was undecided about the total number of Whidbey Island ships the Navy wanted. The FY 83 FYSBP, (Appendix B) projected eight more LSD-41 class ships, which meant that the total number of ships in the class was increased to ten. In the next FYSBP, (Appendix C) with the three ships under construction, the total was increaseed to 12 ships. This number was reduced in the next year, (Appendix D) and was finally established in the FY 86 FYSBP.

In the FY 87 FYSBP, four modified LSD-41 ships were proposed, which ships will be a smaller version of the original class. Although the LSD-41 (Variant) will expand the dock landing ship force, the proposed platform was originally intended to replace the experimental LPD (LPDX), proposed by the Administration in the FY 85 Shipbuilding Program (Appendix D). [Ref. 6:p. 100]

By 1986, the two WHIDBEY ISLAND (LSD-41) were active, and five ships of the LSD-28 class were decommissioned. All eight LSD-41 ships will have replaced the eight LSD-28s by 1989. If the LSD-41 (Variant) receives funding as scheduled, the first one will not enter the fleet before 1992.

h. Landing Platform Dock

The amphibious transport docks (LPD) are similar to the dock landing ship (LSD), except the LPDs have extra space for additional troops and cargo. Furthermore, The LPDs have permanent helicopter decks, and are especially suited for tracked vehicles. [Ref. 5:p. 134]

There were 13 LPDs in two different classes in 1981. Two of the ships were in the Raleigh class and the rest were in the Austin class. Both classes of ships were built during the 1960s and would reach retirement age during the 1990s. In anticipation of the block obsolescence, the Reagan Administration planned on developing a platform (LPDX) which would be similar in size and load characteristics as the ongoing LSD-41 ship program. As previously stated, the LPDX program was subsequently dropped, and four ships which were a modified version of the LSD-41 would be pursued. The four LSD-41 (Variant) ships would replace the Raleigh class. Funds for the first ship would be requested in FY 88. Initially, the LPDX was going to replace both the Raleigh and the Austin classes. Since the LPDX program was dropped, and the Raleigh LPDs were going to be replaced by LSD-41 variants, the Reagan Administration planned on extending the service lives of the remaining 11 ships. The Austin LPD-4 class would undergo a SLEP similar to the aircraft carriers. The SLEP would extend the life of the LPDs to 45 years, modernize their engineering plants, and incorporate better self protection systems. [Ref. 20:p. 291] However, funding for the SLEP has been continuously delayed since the plan was first proposed, as seen in Appendixes C-F. In FY 84, Congress rejected the SLEP and in FY 85, the Navy never obligated the funds which were granted. [Ref. 20:p. 404] Under current plans, the Navy will again request advance funds in the FY 87 budget request.

By 1986, the number of LPDs in the fleet was still the same number as in 1981. Furthermore, there would not be any additions or deletions throughout the rest of the decade. The modified LSD-41 class could not enter the fleet prior to the early 1990s, and the two ships of the Raleigh class would not be decommissioned until they reached the end of their useful service life in the mid-1990s.

8. Mine Countermeasures

Since the minesweepers (MSOs), as seen in Chapter Two, were quickly decaying, the Administration promoted an aggressive plan to rebuild the mine countermeasure force. The plans to build the new 14 mine countermeasure (MCM) ships called for total funding by FY 87 (Appendix B). Likewise, total funding for the 17 Cardinal minehunters ships would be complete by FY 88 (Appendix C). Based on a construction time of three years, the new ships would be completed by the end of the decade. [Ref. 4:pp. 528-529]

However, the shipbuilding programs quickly ran into delays. The first delay came from Congress. In the FY 83 budget, the House of Representatives refused to grant funding for the next four Avenger class ships. Their argument was that not enough work had been completed on the lead ship, appropriated in FY 82, to justify additional procurement. However, the Conference Committee did finally approve funding for one mine countermeasure ship. [Ref. 14:p. 281] This was the only delay caused by Congress, and for the next few years Congress consistently approved the number of MCMs and MSHs requested by the Navy.

With the passage of the FY 86 budget, Congress had appropriated funding for a total of 11 MCMs and five MSHs. However, the Navy had awarded only five contracts for the

MCMs, because problems in the design had surfaced and created costly delays. In building the USS AVENGER (MCM-1), the delivery date was postponed from 1985 to 1986. After construction had begun, the Navy determined that the hull would have to be extended an additional 17 feet to house new equipment and maintain buoyancy. Problems were further discovered in the reduction gears, engine rotation, and the newly developed navigation system. Also, under the present design the ship could not meet the electromagnetic interference criteria established by the Navy. An additional $97 million was appropriated in FY 86 to cover the growth in program cost. [Ref. 21:p. 754]

In anticipation that all problems will be corrected and no further problems are incurred, the Navy plans on awarding contracts in groups of three ships. For the last six ships funded, the contracts will be awarded in FY 86 and FY 87. The contract for the last three ships, which are not yet funded, will be awarded in FY 88. [Ref. 20:p. 355]

The MSH program has also suffered delays. Five ships were fully funded by 1986; however, only one ship was under construction. The lead ship was appropriated in FY 84 and was expected to enter the fleet by 1988. The last four ships were funded in FY 86 with an estimated time of completion scheduled for 1990. However, the MSH has experienced many problems, including cracks in the glass-reinforced plastic hull. Full production on the lead ship under construction has been halted, and contracts for the other four ships will not be submitted until the structural and technical risks are resolved. As seen in Appendix F, the Navy still intends on requesting the funds for the rest of the 12 ships.

For the purpose of this thesis, the assumption is that all problems will be corrected and that all MCMs and MSHs, which up to this time have been funded, will be operational by 1989. However, the assumption is made that all MSOs will be replaced on a one-for-one basis and the NRF ships will be the first to be decommissioned. Table 6 reflects these assumptions.

9. Mobile Logistics Support Force - Replenishment Ships

a. Fast Combat Support Ship/Replenishment Oiler

The Fast Combat Support Ship (AOE) and the Replenishment Oiler (AOR) are the "station ships" which provide "one stop shopping" capability for the task groups. Their ability to simultaneously provide fuel, ammunition, dry, and refrigerated stores allows the battle group to replenish in a minimal amount of time. This reduces the vulnerability of the battle group while keeping it forward deployed. The fast speed of the AOE and the AOR was specifically designed to allow them to directly operate with the combatant forces.

Four AOEs and seven AORs were active in the fleet when the balanced force structure was proposed. The AOEs were built in the 1960s, while the newer AORs were built in the late 1960s through the early 1970s. Since the expected service life of the station ships is 30 years, the AOEs and AORs will reach retirement age from the mid-1990s through to the turn of the century. [Ref. 8:p. 766]

Even though the Navy recognized a shortfall in the number of multi-product ships as early as 1978, the Carter Administration did not implement a shipbuilding program to increase the number of AOEs and AORs. [Ref. 3:p. 56] A fifth AOE was tentatively scheduled for the FY 80 budget, but was eventually deleted.

As seen in the Five Year Shipbuilding Plans in Appendixes A-F, new AORs have not been scheduled during the Reagan Administration. On the other hand, funding for the lead AOE was to be requested in FY 85 according to the FY 83 FYSBP (Appendix B). However, the lead ship was delayed in the subsequent Five Year Shipbuilding Plans (Appendixes C-E). Funds for the lead AOE will finally be requested in FY 87 budget (Appendix F), but since this ship will not be built until the next decade, she will be a replacement and not a force builder. Therefore, the Navy will have only four AOEs and seven AORs throughout the 1980s.

b. Fleet Oiler

In the daisy chain replenishment concept, the "Station Ships" (AOEs/AORs) are re-supplied by "shuttle ships" which include fleet oilers (AO/TAO), ammunition ships

(AE/TAE), and combat store ships (AFS/TAFS/TAF). In this scheme, the shuttle ships transport supplies from friendly ports to the AOEs and AORs. This enhances the force endurance by maintaining the station ships with the battle groups.

The fleet oiler (AO) was the only group of replenishment ships which received attention from the Carter Administration. In 1978, there were 16 ships in the oiler force. There were eight fleet oilers (AOs) and eight Military Sealift Command Oilers (MSC). Since all sixteen ships were rapidly nearing retirement, the Carter Administration essentially planned on replacing the entire force with the new Cimarron class fleet oilers. Twenty ships of the new Cimarron class were originally planned, but only five ships were finally appropriated. The program was eventually cancelled because the new oilers carried far less fuel than the oilers being replaced. Five of the AOs were transferred to the MSC and one was decommissioned.

By late 1981, the fleet oiler force was composed of seven active duty AOs and 13 MSC oilers. Of the seven AOs, there were five Cimarron ships appropriated under Carter, and two 35 year old oilers. Since the Reagan Administration shifted its emphasis to building the Henry J. Kaiser (TAO-187) class of oilers for the MSC, no additional ships in the Cimarron class oilers will be built during the

1980s. However, the five Cimarron oilers are scheduled to be enlarged during FY 88-FY 90, as seen in Appendixes E and F.

The MSC fleet oiler (TAO) was the only group of replenishment ships which received dedicated attention during the first six years of the Reagan Administration. President Reagan inherited 13 old MSC fleet oilers, a cancelled Cimarron shipbuilding program, and an attitude which placed a heavy emphasis on using more civilian crews. Six of the TAOs were nearly 30 years old, with at least ten more years of service. The other seven ships were pushing 40, of which two were already scheduled to be decommissioned in the next year. Within two years, two of the MSC ships were decommissioned. Therefore, the Administration instrumented an aggressive shipbuilding program to rebuild and replace the TAOs. From FY 82 to FY 86, nine of the ten requested Kaiser class oilers were approved. Based on a shipbuilding time of four years, as demonstrated by the lead ship HENRY J. KAISER (TAO-187), seven of the nine ships should be in the fleet by 1989. The Navy originally planned on building a total of 18 ships to replace the 13 MSC oilers and the two oldest AOs. However, as seen in Appendix F, the total number has been increased to 19.

c. Ammunition Ships

The ammunition ships (AE/TAE) were shifted back and forth throughout the decade, but there were no gains or losses. In 1979, there were 13 AEs and no TAEs. Eight of the ships had been built during the late 1960s and the early 1970s. The other five ships, the Suribachi and Nitro classes, were built in the 1950s. In 1980, two AEs were transferred to the NRF, but were returned to active duty in 1982. In 1981, one AE was permanently transferred to the MSC.

The lead ship for a new class of ammunition ship, to replace the Suribachi and Nitro classes, was proposed in the FY 83 FYSBP (Appendix B). [Ref. 6:p. 103] Funding for the first of a four ship class was originally scheduled for FY 85, but was continuously delayed in the following shipbuilding plans (Appendixes C-F). In Appendix F, note that the total number of ships in the proposed class has been increased to five.

d. Combat Stores Ships

At the beginning of the Reagan Administration, the Navy had seven middle-aged combat stores ships (AFSs), which had entered the fleet during the 1960s. [Ref. 5:pp. 172-173] The MSC had one stores ship (TAF), and one leased with option to buy British TAFS. The Navy would also rent a second combat stores ship from the British Royal Fleet Auxiliary (RFA) in 1981, under the same option. These two ships (RFA LYNESS and RFA TARBATNESS) were eventually bought with funds provided by the FY 82 budget. [Ref. 22:p. 581] A third ship (RFA STROMNESS) was acquired with FY 84 funds.

[Ref. 17: p. 634] The acquisitions of the three British ships were the only changes to the combat stores ships from 1981 to 1986.

No further additions or deletions are expected throughout the rest of the decade. One AFS, funding to be requested in FY 87, was proposed in the FY 84 shipbuilding program (Appendix C), but was deleted in the following Five Year Shipbuilding Plans (Appendixes D-F).

10. Material Support Ships

The material support ships are the fleet tenders. These ships are vital in sustaining a task group at sea. Their primary mission is to provide mobile on-site maintenance and repairs, and to provide other support to forward deployed units. The ships carry the tools, instruments, and labor to provide the services which would otherwise have to be performed at a friendly port. Their services range from calibrating binoculars to repairing a hull. There are three types of tenders: the destroyer tenders (ADs), the submarine tenders (ASs), and the repair tenders (ARs).

The Samuel Gompers destroyer tender (ADs) class was started in the 1960s to replace the World War Two vintage Dixie and Klondike classes. Only two were built before the program was cancelled because of cost overruns. [Ref. 5: pp. 167-169] Under the Carter Administration, the program was restarted and four ships were funded. Since the first ship of the four scheduled to be delivered in 1980 was the USS YELLOWSTONE (AD-41), this new group of ships would be renamed the Yellowstone class, even though they were the same design as the Samuel Gompers class.

As the four Yellowstone ships entered the fleet, they replaced the Dixie and Klondike ships on a one-for-one basis. After the fourth ship was commissioned in 1983, a total of nine destroyer tenders served the fleet. However, the "new" force still contained three 40 year old Dixie class ships. Even though the Dixies have reached their service life, they will most likely remain in service until they are replaced.

Initially, the Reagan Administration dropped the Yellowstone program. However, an AD was scheduled in the FY 83 and FY 84 shipbuilding programs, but was subsequently replaced by the repair tender (AR) program, as seen in Appendixes B-D. Therefore, there are no more additions or deletions expected throughout the rest of the 1980s.

In 1981, the four Ajax class repair ships (ARs) were some of the oldest ships in the Navy. The four ships were the only repair ships in commission during Carter's and Reagan's terms. Under the Reagan Administration, the FY 89 budget request would solicit shipbuilding funds for a new class of repair tenders to replace the Ajax ships, as presented in Appendix D. However, the request was delayed until FY 90 in the FY 86 FYSBP (Appendix E), and was finally deleted in next FYSBP (Appendix F).

There are two categories of submarine tenders. The distinction lies in their ability to service fleet ballistic missile submarines (SSBN). Four submarine tenders have been specifically designed and assigned for SSBN support, in addition to two MSC cargo ships (TAK). These six ships have been in service through the Carter Administration and will serve throughout the 1980s.

The remaining submarine tenders service the fast attack submarines. In the early 1970s, three new ships of the L.Y. Spear/Emory S. Land class were funded. These ships replaced three of the older Fulton class around the end of the 1970s and the beginning of the 1980s. No Administration has planned on building additional ASs since the third ship was appropriated in FY 73. Therefore, the number of submarine tenders, excluding the SSBN ASs, has centered around eight. With the one-for-one exchange of the ASs, the force level will remain constant into the 1990s.

11. Fleet Support Ships

The Fleet Support Force consists of ships which are involved with submarine surveillance (TAGOS), salvage and towing (ARS/ATF/ATS), and submarine rescue (ASR). These ships are non-combatants, but perform necessary missions vital to carrier battle groups and amphibious operations.

a. Ocean Surveillance Ships

The ocean surveillance ship (TAGOS) was designed to support the Surveillance Towed Array Sensory System

(SURTASS). Assigned to the MSC, the TAGOS/SURTASS combined would collect and process undersea acoustic data. This information would be integrated with other surveillance data to monitor submarine activity.

The TAGOS shipbuilding program began in 1979 and was continued under the Reagan Administration. An aggressive program, a total of 12 ships were funded with the passage of the FY 82 budget. However, during the next two fiscal years, the program came to a standstill because of problems associated with the sonar. In FY 85, the program was re-started when two of the three ships requested were funded.

By this time another deficiency became apparent. The TAGOS was designed as a monohull ship, which did not provide the stability necessary to gather acoustic data in the northern hemisphere. To overcome this limitation, the Navy re-designed the TAGOS, and increased the desired force number of ships. The new TAGOS would be dual hull and would be called TAGOS (SWATH). SWATH stood for Small Waterplane Area Twin Hull. The dual hull would provide the stability to conduct surveillance operations in the northern hemisphere in adverse weather. The Navy still wanted 18 TAGOS, but now also wanted eight TAGOS (SWATH). In FY 86, Congress appropriated the money to build one TAGOS and the lead TAGOS (SWATH) ship. This brought the total number of appropriated TAGOS ships to 15, excluding the TAGOS (SWATH) ship. In the FY 87 FYSBP, (Appendix F) the last three TAGOS will be appropriated in FY 87, and the final seven TAGOS (SWATH) ships will be appropriated during the FY 88 through FY 90 timeframe.

The shipbuilding contract for the first 12 ships were awarded to Tacoma Boat. By 1986, eight ships were in the fleet; however, it was doubtful that the remaining four ships would be finished on schedule. Tacoma had gross losses during previous years, and had halted all work on TAGOS projects. All employees associated with the TAGOS project, including the office management, had been either laid off or fired. In reviewing the situation, the Navy felt that Tacoma would be able to complete two of the four ships with the remaining available funds. However, the other two ships would have to be submitted for new competition, which would eventually delay their delivery date by 30 months. [Ref. 20: pp. 321-324] In effect, this meant that only ten of the first 12 ships appropriated through FY 82 will be in commission by 1989.

The contract for the two ships appropriated in FY 85 was awarded to Halter Marine and was scheduled to be completed before 1989. Since the ships appropriated after FY 85 will not be completed until the 1990s, Table 6 reflects a total of 12 TAGOS ships for 1989.

b. Salvage Ships

The salvage ships (ARS) provide towing and salvage services for battle groups and amphibious assaults.

They carry compressed air diving equipment to allow sustained underwater hull work. They also have medical facilities to support diving operations. In peacetime, as in wartime, the ARSs are forward deployed to support the fleet.

In 1981, there were six salvage ships. These ships were built during the 1940s and were scheduled to be retired due to age. The ships, like the MSOs, had obsolete machinery which was not supportable. Spare parts were hard, if not impossible, to obtain since the manufacturers had gone out of business. They were also unable to tow the new larger ship classes. [Ref. 3:pp. 1056-1057]

Under the Reagan Administration, the Navy planned on building five ARSs of the new Safeguard class. These ships would replace the six aging ships and fulfill the balanced force structure requirement.

During the next three years, four ships were funded and were scheduled to be completed by 1986. The fifth ship was rescheduled from FY 84 to FY 91 as seen in Appendixes A-F. The four Safeguard ships replaced the World War Two vintage on a one-for-one basis. By the end of 1986, the salvage force was composed of four new ships and two of the remaining older ships. The last two aging ships will be decommissioned or transferred to the NRF by 1989. [Ref. 6:p. 102] If transferred to the NRF, the ARS will be Category B ships and not counted in the total ship count.

c. Submarine Rescue Ships

At the beginning of the 1980s, there were six submarine rescue ships (ASR) in two different classes. The four ships of the Chanticleer class were built during the 1940s. Even though the Chanticleer class was built principally for submarine rescue operations, the tugboat design could also be used for salvage and towing.

The other two ships were in the Pigeon class. These ships were built in the early 1970s, and were designed only for submarine rescue operations. This class was unique in that it had a catamaran design. The two hulls were built to support a Deep Submergence Rescue Vehicle (DSRV). Allowing up to eight divers to work in depths of 1.000 feet, the DSRV was used to save crewmen in disabled submarines which were trapped on the ocean floor above the hull collapse depth.

In 1986, all six ships were still in commission. However, the Reagan Administration did not plan on expanding the ASR force, or replacing the older ships. Since the ships of the Chanticleer class are well over 40 years old, they will most likely be decommissioned by 1989.

d. Salvage and Rescue Ships

Only three salvage and rescue (ATS) ships were in commission when the Balanced Force Structure Program was promulgated. The Edenton class ATSs were ocean-going tugs built in the early 1970s, and were designed to also support salvage and diving operations.

Under the Reagan Administration, the force structure would require a minimum of three Edenton ATSs and five ARSs. [Ref. 11:pp. 700-728] As previously stated, the new ARSs were scheduled in the shipbuilding plans. However, the three Edenton ATSs were already in commission and would not reach the end of their service life until after the turn of the century. Therefore, the Administration is not building any more ATSs. (Appendixes A-F)

e. Fleet Tugs

All fleet tugs (TATF) were operated by the MSC with civilian crews by 1981. Specifically built with a commercial design for the MSC, the seven new Powhatan class tugs entered the fleet in the early 1980s and replaced the World War Two ATFs. There will not be any further additions or deletions.

12. Strategic Submarine Force

By 1981, the strategic submarine (SSBN) force consisted of 31 Lafayette Poseidon submarines and two Benjamin Franklin Polaris submarines. As discussed in the previous chapter, the last two Polaris submarines would be converted to attack submarines within the next few years. Also, 12 of the Lafayette submarines would be modified to carry the new TRIDENT I SLBM by 1985. The remaining 19

Lafayette boats would be active until ultimately replaced by the Ohio class.

After suffering cost overruns and schedule delays in the 1970s, the Ohio class shipbuilding program was finally on track by 1981. A total of nine ships were appropriated when President Reagan took office, and the first one was scheduled to enter the fleet in 1982. Also like Carter, Reagan planned on building three ships every two years. Like Carter, Reagan was unable to gain congressional support, and conceded to one ship per fiscal year. This can be seen in the Five Year Shipbuilding Plans in Appendixes A-F. Except for the FY 82 FYSBP, which was the original plan, the only deviation from the one ship request was in the FY 83 FYSBP. Two submarines were requested in FY 83 to compensate for the submarine which was not funded in FY 82. Consequently, Congress only appropriated funding for one of the two ships requested in FY 83, thereby delaying Reagan's overall plan by one submarine. After FY 83, Congress funded one Ohio submarine for the next three fiscal years in accordance with the budget requests. With the passage of the FY 86 Appropriation Bill, Congress approved a total of 13 Ohio class submarines.

By 1986, the force was composed of 12 Lafayette Trident I modified, 16 Lafayette Poseidon, and eight Ohio submarines. Based on the number of launchers, the eight Ohio class submarines replaced the ten Polaris and three Lafayette Poseidon submarines. Therefore, the total number of launchers was 640. This tends to confirm the assumption made in Chapter Two that the Administration would maintain approximately 656 launchers, which would require one Ohio submarine to replace 1.5 Polaris or Poseidon submarines.

Of the total 13 Ohio class boats approved through 1986, and based on a shipbuilding time of six years, ten of the boats would be operational by 1989. Therefore, the number of Lafayette Trident I boats would still be the same. but there would be 13 Poseidon boats.

3. SUMMARY

A review of the history of the shipbuilding programs and the Naval Force Summaries (see Table 6) during the 1980s show that President Reagan did undertake and accomplish a massive build-up of the Navy. By the end of the decade, the Navy would have approximately 586 ships in its inventory and 19 ships under construction. Although this is an impressive accomplishment, there are several points which must also be considered.

Since many of the ship categories faced block obsolescence when President Reagan took office, the build-up had to incorporate replacements for the aging ships. Therefore, from the very beginning, the Fleet Expansion Program was handicapped. As seen in the previous sections, funding which could have been used elsewhere in the expansion was oftentimes used to replace antiquated ships. Although many ships were replaced during the 1980s, the block obsolescence would continue until the turn of the century. Hence, new shipbuilding programs, such as the CG-47, LHD-1, DDG-51 or SSN-21 programs, would be required to fill the impending defense gaps.

For the most part, the Five Year Shipbuilding Plans from FY 82 to FY 86 (see Appendixes A-E) were stable in that the goals were not significantly changed. However, there were shipbuilding programs for a few ship categories which were delayed, reduced, or cancelled. There were four ship types which were scheduled in the FYSBPs and subsequently delayed. The four categories were the AOE station ship, the AE ammunition ship, the AD destroyer tender, and the ARS salvage ship. While there was never any construction on ships in the first three categories, there were four ARSs built in the early 1980s. However, the last ship was continuously delayed. Furthermore, the Spruance class destroyer shipbuilding program was ultimately reduced to 31 ships, and the LPDX dock transport program was finally cancelled.

IV. THE NAVY'S EMPHASIS AFTER 1989

Chapter Two developed the Balanced Force Structure Model, which presented the force level goals of the Fleet Expansion Program. (Table 2) To accomplish these new goals, the Navy would require at least 639 ships. This new force would represent the minimum force level needed to regain maritime superiority. It would also represent the maximum risk acceptable to the Reagan Administration.

Chapter Three examined the history of the shipbuilding programs under the Reagan Administration. From this information, the prospective Summary for the U.S. Naval Forces in 1989 (see Table 6) was developed. As seen in Chapter Three, the Navy will have 586 ships in the fleet and 19 ships undergoing construction by the end of the decade. Therefore, the Administration is claiming that the 600-Ship Navy goal will be achieved. However, the fleet will still not have a balanced force structure, since the force level will be still be over forty ships short of the requirements imposed by the Balanced Force Structure Model.

This chapter uses the information developed in the previous two chapters to determine whether the Navy will continue to pursue the progression of a balanced force structure, or will shift its emphasis to sustaining a 600 ship count.

Initially, the Summary of U.S. Naval Forces in 1989 is compared against the Balanced Force Structure Model. This process identifies those ship categories which will not meet force level goals by the end of the decade.

The second half of this chapter succinctly determines the status of the Fleet Expansion Program. The ship categories which were identified in the previous section are evaluated in the most recent Five Year Shipbuilding Plan (FYSBP). If the deficient ship categories are included in the FYSBP, and if the additional shipbuilding programs will increase the size of the fleet, then the Navy is still pursuing the expansion of the balanced force structure. On the other hand, if the deficient ship categories are included, but are intended to be used as replacements, then the Navy has shifted its emphasis to sustaining the 600 ship count.

Table 7 depicts the comparison of the prospective Summary of the U.S. Naval Forces in 1989 against the Balanced force Structure Model. There are two columns under the category called "Number of Ships." The first column, listed as "Objective", represents the goals of the Force Structure Model. The second column, listed as "Modified 1989", represents the force level by 1989, including the ships under construction which were funded from FY 81 to FY 86.

Figure 4 identifies those ship categories appropriated before FY 87 which would still be under construction by 1989.

TABLE 7

Comparison of Prospective Summary U.S. Naval Forces in 1989 with the Balanced Force Structure Model

Ship Type	Number of Ships OBJECTIVE	 MODIFIED 1989
Battle Forces		
Aircraft Carriers (CV/CVN)- deployable	15	15
Surface Combatants		
Battleships (BB)	4	4
Cruisers guided missile (CG/CGN)	33	46
Destroyers (DD) *	37	32
Destroyers guided missile (DDG)	67	38
Frigates (FF/FFG) *	101	116
Attack Submarines (SS/SSN)	100	103
Patrol Craft Combatants (PHM)	6	6
Subtotal, combatants	363	360
Amphibious Ships		
Command Ship (LCC)	2	2
Assault Transport (LKA)	5	5
Landing Ship Transport (LST) *	20	20
Helo Assault Ship (LHA)	5	5
Helo Transport Ship (LPH)	0	5
General Purpose Assault (LHD)	12	2
Landing Ship Dock (LSD)	17	13
Dock Transport (LPD)	13	13
Subtotal, Amphibious	74	65
Mine Warfare Ships		
Minesweepers (MSO)	0	3
Mine Countermeasures (MCM)	14	11
Minehunters (MSH)	17	5
Subtotal, Mine Warfare	31	19

TABLE 7 continued

Replenishment Ships		
Station Ship (AOE)	8	4
Station Ship (AOR)	7	7
Oiler (AO/TAO)	29	18
Ammo. ship (AE/TAE)	16	13
Stores Ship (AFS/TAFS/TAF)	9	11
Subtotal, Replenishment	69	53
Total, BATTLE FORCES	537	497
Support Forces		
Material Support Ships		
Destroyer Tender (AD)	9	9
Submarine Tender (AS)	8	8
Repair Ship (AR)	4	4
SSBN SUPPORT (AS/TAK)	6	6
Subtotal, Material Support	27	27
Fleet Support Ships		
Surveillance Ship (TAGOS)	18	15
Salvage Ship (ARS)	5	4
Submarine Rescue Ship (ASR)	6	2
Salvage/Rescue (ATS)	3	3
Fleet Tug (ATF/TATF)	7	7
Subtotal, Fleet Support	39	31
Total, SUPPORT SHIPS	66	58
Strategic Submarine Forces		
Ohio Class Trident (SSBN)	11	13
Lafayette Trident (SSBN)	12	12
Lafayette Poseidon (SSBN)	13	9
Total, STRATEGIC	36	34
Total, U.S. Naval Forces	639	589

* Includes Category A Mobilization Forces

SHIP TYPE	QTY	STATUS
AIRCRAFT CARRIER (CVN)	2	USS ABRAHAM LINCOLN (CVN-72) will expand the fleet. USS GEORGE WASHINGTON (CVN-73) will replace the CORAL SEA (CV-43), which will relieve the LEXINGTON (CVT-16) as a training ship. MIDWAY (CV-41) will remain operational until she is replaced by another carrier which will be appropriated in FY92.
ATTACK SUBMARINES (SSN)	8	These Los Angeles class submarines will serve as replacements on a one-for-one basis.
GEN. PUR. ASSAULT (LHD)	1	Will replace the Helo Transport Ships (LPH) on a one-for-one basis.
OILER (TAO)	2	Will be used to replace the six ships of the old Neosho and Mispillion classes.
SURVEILLANCE (T-AGOS)	3	Will expand the T-AGOS force.

Figure 4 Ships Undergoing Construction Appropriated from FY 81 to FY 86 as of 1989

Figure 4 also explains how those ships would eventually affect the Naval Summary. These calculations are included in the Modified 1989 category in Table 7.

This thesis uses the above calculations in the comparison with the Force Model, since this is a technique used by the Navy, as discussed in Chapter One. By assuming that all ships have been built, at a particular period in time, future force level deficiencies can be determined. This also facilitates the comparison in the next section which includes the ships requested in the FY 87 FYSBP.

Finally, the addition of the ships undergoing construction will not have a major impact on the force summary, and does not affect the outcome of the research.

A. COMPARISON OF THE FLEET IN 1989 WITH THE BALANCED FORCE STRUCTURE MODEL

As seen in Table 7, there will be 12 ship categories which will not meet force level goals. These areas are discussed in the following section.

1. Surface Combatants

Under the area of surface combatants, the destroyer force will be the only category which will be deficient. Recall from Chapter Three that 31 Spruance class destroyers (DD) replaced all aging destroyers, with the exception of one which was assigned to the NRF Category A Mobilization Forces. Furthermore, the Spruance class shipbuilding program was cancelled after 31 platforms were funded. Therefore, there will be only 32 DDs in 1989. This will leave a shortage of five DDs by the end of the decade.

By 1989, there will be 38 guided missile destroyers (DDG). Therefore, the DDG force will be 29 ships short of the force level goal. Of the 38 ships, 33 will reach retirement age during the 1990s.

2. Amphibious Ships

In the area of amphibious warfare, 74 ships would be required to lift a 1.5 MAF. By 1989, there will be only 65 ships. This shortage will primarily be in two categories. The General Purpose Assault (LHD) force will have only two of the required 12 ships. As originally planned, seven LHDs would replace the seven Helo Transport Ships (LPH), and the remaining five would augment the amphibious force. By 1989, two LHDs will have replaced two LPHs. Since this program only began in the late 1980s, it will most likely be included in the FYSBP.

The Landing Ship Dock (LSD) platforms will be four ships short of the goal. Eight of the 13 ships will be of the new LSD-41 Whidbey Island class which ultimately replaced eight Thomaston class ships. The other five ships will be in the older Anchorage LSD-36 class, which will be operational until the turn of the century. In pursuing the LSD-41 shipbuilding program, the Reagan Administration was undecided about the total number of ships to build. Initially, the FY 83 FYSBP, (Appendix B) projected eight more LSD-41 class ships, in addition to the two ships which had been previously approved. Therefore, there would be ten LSD-41 class ships and five Anchorage class ships. In the next FYSBP, (Appendix C) with three ships under construction, the total was increased to 12 LSD-41 class platforms. Under this plan, the Administration would have reached the goal. However, the total number of ships was finally reduced to eight in the FY 85 FYSBP, as seen in Appendix D. Therefore, the total number of LSDs in 1989 will be 13.

3. Mine Warfare Ships

Although the shipbuilding programs for the Mine Countermeasure (MCM) and the Minehunter (MSH) suffered many setbacks, the Administration continued to request funding for the construction of these ships. Based on the assumptions that all construction problems would be corrected and that all ships funded up to and including FY 86 would be built by the end of the decade, the mine warfare forces would still be short of the force level goals.

4. Replenishment Ships

Except for the three British acquisitions for the TAFS force, the only other force to receive attention from the Reagan Administration was the oilers. In an effort to rebuild the MSC oilers (TAO), the Administration pursued an aggressive shipbuilding plan. However, by 1989 there will still be a shortage of nine ships.

As seen in Appendixes A through E, funding requests for the station ships (AOE) and the ammunition ships (AE) were continuously delayed. These two categories of ships will be less than the force goals by 1989, and will be facing retirement in the 1990s.

5. Fleet Support Ships

The surveillance ships (T-AGOS) would be three ships short of meeting force goals, but the additional ships would most likely be requested in future funding, since there was much interest in this program during the past few years. On the other hand, suffering from age and neglect, the submarine rescue force would be reduced by four ships from the 1980s. The salvage force would be short by one ARS salvage ship.

B. FISCAL YEAR 1987 FIVE YEAR SHIPBUILDING PLAN

Based on the information presented, the Navy will have approximately 600 ships by the end of the decade. To reach the 600-Ship Navy goal, the new ships which were constructed during the 1980s were essentially appropriated during FY 81 to FY 86. However, the goal for a balanced force structure would come from shipbuilding appropriations after FY 86. Therefore, an examination of the FY 87 FYSBP will determine if the Navy is still pursuing a balanced structure, or if the emphasis is on sustaining a 600 ship count.

Table 8 is a modified version of the FY 87 FYSBP. Only those ship categories which are counted in the Navy's total ship count are presented in the Table.

Although the entire FY 87 FYSBP is presented in Appendix F, Table 8 is provided herein for easy reference.

Upon initial examination of Table 8, recall that the first four ship categories in the FYSBP will meet the balanced force level objectives. This seems to imply that the Navy is continuing the expansion of ship categories beyond the minimum force level requirements. However, a quick review of Chapter Three will show that these ships are scheduled for replacements. The Ohio Trident class submarines (SSBN) will replace the retiring Lafayette Poseidon submarines. The Los Angeles SSN-688 and the new Seawolf SSN-21 classes will replace three aging attack submarine classes. Finally, the Ticonderoga CG-47 class guided missile cruiser will replace the 21 cruisers built in the 1960s. Therefore, the first four ship categories in Table 8 would sustain the total ship count since they would essentially be used to replace aging assets on a one-for-one basis.

In comparison with the FY 87 FYSBP, the following sections evaluate those ship categories which will be less than the minimum balanced force structure requirements by the end of the decade.

TABLE 8

NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY 87	FY 88	FY 89	FY 90	FY 91
NEW CONSTRUCTION					
TRIDENT	1	1	1	1	1
SSN 688	4	3	3	4	1
SSN 21			1		2
CG 47	2	2	2	2	
DDG 51	3	3	3	3	5
LHD 1		1	1		1
LSD 41 (Variant)		1	1	1	1
MCM		3			
MSH	4	4	4		
AOE 6	1		1	1	1
TAO	2	2	2	2	2
AE		1		2	2
TAGOS	3	3	2	2	
ARS					1
TOTAL	20	24	21	18	17
SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS					
CV SLEP		1			1
LPD 4 SLEP			1	3	3
AO (JUMBO C)	1	1	1	2	
TOTAL	1	2	2	5	4

* The FY 87 FYSBP has been modified to include only those ships which are counted in the Navy's total ship count.

1. Surface Combatants

With the exception of the CG-47 class, the Arleigh Burke DDG-51 guided missile destroyer class will be the only other surface combatant in the FY 87 FYSBP. Although there would be a shortage of destroyers and guided missile destroyers in the balanced fleet concept, the DDG-51 shipbuilding program would be used to replace the 33 DDGs facing retirement in the 1990s.

2. Amphibious Ships

According to the original plan, seven General Purpose Assault (LHD) ships would replace the Helo Transport Ships (LPH), and five additional LHDs would be built to augment the force. Under the FY 87 FYSBP, three General Purpose Assault (LHD) ships would be constructed, in addition to the two ships in the fleet by 1989. Therefore, based on the assumption that it would take four years to build, the total number of LHDs would be five by FY 95. Since these ships will ultimately replace the original seven LPHs on a one-for-one basis, the Navy would have to build two more LHDs. Furthermore, based on a 30 year life span, the LPHs would have to be decommissioned during the mid 1990s. Therefore, the three LHDs scheduled in the FY 87 FYSBP must be considered as replacements. In other words, the seven LPHs would have to be replaced before the five LHDs could be considered as force builders.

Four Landing Ship Dock (LSD) platforms are scheduled for the next five years. However, these ships will be modifications to the standard Whidbey Island LSD-41 class in that the new LSD-41 Variant class will be smaller than the original class. The additional four ships will allow the LSD category to meet the force level goals.

Originally, an experimental Dock Transport (LPDX) program was proposed to replace the 13 LPDs nearing block obsolescence in the 1990s. However, the LPDX program was subsequently dropped, and was replaced by the new LSD-41 Variant class. Under the new plan, four LSD-41 Variant class ships would replace two old LPDs, and the remaining LPDs would undergo a SLEP.

Therefore, the LSD-41 Variant shipbuilding program could be considered a force builder since it will expand the LSD force, or it could be considered as replacements since it will replace the LPDs. In this research, the author will take the middle of the road approach. It is recognized that two of the LSD-41 Variant ships will be replacements for the two LPDs, while it is also recognized that the other two LSD-41 Variant ships will be force builders.

3. Mine Warfare Ships

Although the MCM and MSH shipbuilding programs suffered many delays, the ships included in the FY 87 FYSBP will complete the force level goals. With the additional three MCMs to be requested in FY 88, the MCM force will total

14 ships. With the additional 12 MSHs to be requested from FY 87 to FY 89, the MSH force will meet the minimum requirements for 17 platforms. Even though the MCMs will replace the remaining three minesweepers (MSO), the MCMs were principally used for expansion. Therefore, the MCM and the MSH shipbuilding programs will be force builders.

4. Replenishment Ships

As stated in the preceding section, the station ships (AOE) and the ammunition ships (AE) will be decommissioned in the 1990s. New construction for these two ship categories was continuously delayed throughout the 1980s. Therefore, the four AOEs and the five AEs in the FY 87 shipbuilding plan will be replacements on a one-for-one basis.

However, the MSC oiler (TAO) shipbuilding program will replace older assets and expand the force. Of the ten ships planned, four ships will replace on a one-for-one basis the last four aging ships. The remaining six ships will expand the force. Therefore, since there were 18 oilers in 1989, of which four will be replaced, the additional six ships will increase the force level to 24 fleet oilers.

5. Fleet Support Ships

Like the MCM and MSH programs, the ocean surveillance (T-AGOS) shipbuilding program ran into construction problems. However, to fulfill force level goals, the final three T-AGOS ships would be requested in FY 87. Whereas the remaining seven ships included in the shipbuilding plan would go beyond the minimum balanced force level requirements. However, these ships were not originally included in the Balanced Force Structure Model, since they will be the new T-AGOS (SWATH) class. After the original T-AGOS ships were built, the Navy discovered that the platform could not operate in the northern hemisphere. Therefore, the T-AGOS (SWATH) class would be built to compensate for the design deficiencies of the original T-AGOS class.

Of the remaining two categories of Fleet Support Ships which would be deficient, the salvage (ARS) force will be expanded to meet the force level requirements with the final ship to be requested in FY 91. On the other hand, the submarine rescue (ASR) force was the only deficient category not included in the FY 87 FYSBP.

C. SUMMARY

In comparing the deficient ship categories with the FY 87 FYSBP, there were two ship categories which were not included in the shipbuilding plan. These categories were the submarine rescue ship (ASR) and the DD destroyer force. Except for these two deficient categories, the other ten ship types which were below force level requirements were included in the FY 87 FYSBP. However, out of a total of 100 ships to be requested in the next five years, 68 ships would be used for replacements.

In a limited sense, the Reagan Administration would continue to expand the fleet in accordance with the balanced force structure concept. The Mine Countermeasures programs, the ARS program, and the T-AGOS programs would serve to expand the fleet. The LSD-41 Variant and the TAO shipbuilding programs would replace decommissioning ships and increase the number of their respective force. All five programs would serve to expand the total ship count to 600, so that one of the goals of the Fleet Expansion Program would be accomplished under this Five Year Plan. Furthermore, the minimum force level goals and shipbuilding programs would be completed in the Mine Countermeasures, T-AGOS, ARS, and LSD forces.

However, the remaining eight shipbuilding programs in the Five Year Plan would be used as replacements. Of these eight different programs, four would be used as replacements for ship categories which would meet or exceed force level goals by 1989. The other four programs would be used as replacements in categories which were desperately below the balanced force level goals.

V. CONCLUSIONS AND RECOMMENDATIONS

A. STATUS OF THE FLEET EXPANSION PROGRAM

In this thesis a historical research of the Naval shipbuilding programs and appropriations throughout the 1980s was conducted. This information was used to build a model of the balanced force structure and to trace the development of the Fleet Expansion Program. In building the Balanced Force Structure Model, several key elements became apparent. First, since the build-up was constrained by the budget, the model represented an absolute minimum force level necessary to control the seas. Second, there was a strong interdependence and intradependence of the task groups. Therefore, any deviation from the Balanced Force Structure Model would adversely affect the task groups' effectiveness and ability to survive.

After tracing the history of shipbuilding programs for each ship type, the modified 1989 Naval Force Summary was constructed and was compared with the Balanced Force Structure Model. This comparison was used to determine those ship categories which would not meet the force level objectives. It also revealed that the Navy would have over 600 ships fully funded with the FY 86 budget appropriations. Therefore, any shipbuilding after FY 87 would either have to build the Balanced Force Structure Model or sustain the 600 ship count.

To determine the status of the Fleet Expansion Program, the force level deficiencies identified in the 1989 Summary were compared with the FY 87 Five Year Shipbuilding Plan. To facilitate the final evaluation, a criteria was established. If the deficient ship categories were included in the FY 87 FYSBP and would increase the size of the fleet, then the Administration would still be building a balanced force structure. On the other hand, if the ship categories were not included, or if they were included but would be used for replacements, then the Administration's emphasis would be on sustaining a 600 ship count.

The analysis revealed that there was not a clear cut distinction. Two deficient ship categories were not included in the five year plan. The remaining ten categories, which were below force level requirements, were included in the FY 87 FYSBP. However, these ten shipbuilding programs were essentially equally divided between those which would expand the balanced force structure, and those which would be used for replacements.

Although the distinction is not clear cut, a closer examination of the FY 87 FYSBP indicates that there is a slight emphasis on building and sustaining a 600 ship count. Out of the 100 ships to be requested in the next five years, 68 ships will be used for replacements. Of the remaining 32 ships, 21 ships (three MCMs, 12 MSHs, and six T-AGOs) were scheduled to be completed by 1986, but were delayed by construction problems. Hence, these 21 ships are carryover shipbuilding programs and cannot be considered as full fledge programs designed to continue the expansion of the Balanced Force Structure Model beyond the 600 ship goal. Furthermore, four other ships (T-AGO SWATH) were unplanned additions to the force structure. Therefore, the FY 87 FYSBP's expansion of the balanced force structure would be very limited.

B. RECOMMENDATIONS

Presently, there is an indication that the shipbuilding programs are aimed at replacing the aging ships and sustaining a 600 ship count. However, the importance of a balanced force structure has been shown in Chapter Two. This interdependence and intradependence of the various task groups is necessary for survival and control of the seas. Hence, it is necessary to continue the development of the Force Structure Model. Only those ships which are below force level objectives should be built until the total Balanced Force is complete.

Still, there is the problem of the ships facing retirement. As seen throughout this thesis, there are various ways to alleviate the burden of the impending block obsolescence of many ships until the balanced force is complete. The most obvious solution is to extend those ships which still have useful service lives beyond their retirement age. Other ships could undergo a SLEP similar to the carriers and the LPDs. Moreover, certain task group missions could be augmented by other ship types. Specifically, the destroyer forces could be augmented by the excessive number of guided missile frigates and guided missile cruisers. Until enough destroyers are built to meet force level objectives, the frigates and the cruisers, both of which are over their force level requirements, could be used to meet the destroyers' task group requirements.

Finally, if the Navy is unable to build all of the remaining ships necessary to meet the Balanced Force objectives, then a new Balanced Force Structure Model needs to be developed to incorporate the limitations. This would increase the risk above the maximum amount originally acceptable to the Reagan Administration. However, it is far more important to balance the available assets in order to support the interdependence and intradependence of the task groups. If the task groups are not properly supported, then their effectiveness and ability to survive is greatly reduced.

APPENDIX A

FY 82 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY82	FY83	FY84*	FY85*	FY86*
NEW CONSTRUCTION					
TRIDENT	1	1	1	2	1
SSN-688	2	1	1	1	2
SSN (FA class)				1	
CVN		1			
CG-47	3	2	4	4	4
BB (React)	1	1			
DDG-51 (DDGX)				1	
LSD-41		1			
FFG 7	3	2			
MCM	1		4	4	4
TAGOS	4	3	3		
TARC				1	
ARS	2	1	1		
TAO	1		2	2	2
NRF CORVETTE (FFX)			1	2	3
TARX	1	1	2	2	2
Subtotal	19	14	19	18	20
SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS					
CV SLEP		1		1	
CV 34 REACT	1				
TAFS (Conv)	2				
TAGS (Conv)			2		
TAH (C)		1			
TAKRX	8				
TAK (FBM/Conv)			1		
TALS (C)	1				
TAKX (C)	2	2		1	
TOTAL	33	18	22	20	20

* Subject to change

APPENDIX B

FY 83 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY83	FY84	FY85	FY86	FY87
NEW CONSTRUCTION					
TRIDENT	2	1	1	1	1
SSN-688	2	3	4	4	4
CVN	2				
CG-47	3	3	3	4	4
DDG-51			1		3
CGN 42					1
DD-963				2	1
LSD-41	1	1	2	2	2
LHD-1		1			1
FFG 7	2	2	2	3	3
MCM	4	4	5		
MSH		1		5	5
AD				1	1
TAO	1	3	4	4	6
TAGOS		1		2	3
AE			1	2	1
TARC				1	
ARS	1	1			
AOE			1	1	2
Subtotal	18	21	24	32	38
SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS					
CV SLEP	1		1		1
BB (React)	1	1	1		
TAGM (Conv)				1	
TAGS (Conv)			2		
TAHX(C/ACQ)	1	1			
TAKRX	4				
TAK (FBM/Conv)			1		
TOTAL	25	23	29	33	39

APPENDIX C

FY 84 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY84	FY85	FY86	FY87	FY88
NEW CONSTRUCTION					
TRIDENT	1	1	1	1	1
SSN-688	3	4	4	5	5
CVN					1
CG-47	3	3	3	3	2
DDG-51		1		3	5
DD-963					1
LSD-41	1	2	2	2	2
LHD-1	1		1		1
LPDX					1
MCM	4	4	4		
MSH	1		4	4	4
AD				1	1
AE			1	1	1
AFS				1	
AOE			1	1	1
TAGOS		2	2	2	
TAO	3	4	4	4	4
TARC			1		
Subtotal	17	21	28	28	30
SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS					
CV SLEP		1		1	
BB (React)		1	1		
AMPHIB SLEP			1	3	3
TAFS (Act)	1				
TAGM (Conv)			1		
TAGS (Conv)		2			
TAH (Conv)	1				
TAK (Conv)		1			
TAKRX (Acq/Conv)	4				
TOTAL	23	26	31	32	33

APPENDIX D

FY 85 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY85	FY86	FY87	FY88	FY89
NEW CONSTRUCTION					
TRIDENT	1	1	1	1	1
SSN 688	4	4	4	4	4
SSN 21					1
CG 47	3	3	3	2	2
DDG 51	1		3	5	5
LSD 41	2	2	2		
LHD 1		1		1	1
LPDX				2	2
MCM	4	4	1		
MSH 1		4	4	4	4
AE		1	1	1	1
AOE-6		1		1	1
AR					1
TAGOS	3	3			
TAGS	2				
TAO 187	3	3	3	3	2
LCAC	(9)	(12)	(12)	(12)	(12)
TOTAL	23	27	22	24	25

SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS

	FY85	FY86	FY87	FY88	FY89
CV SLEP	1		1		
BB REACT	1		1		
LPD-4 SLEP			1	3	3
AG (CONV)		1			
AO JUMBO				1	2
TACS	2				
TAGM (CONV)			1		
TAK (FBM) (CONV)	1				
TAVB (CONV)	1	1			
TOTAL	6	2	4	4	5

APPENDIX E

FY 86 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY86	FY87	FY88	FY89	FY90
NEW CONSTRUCTION					
TRIDENT	1	1	1	1	1
SSN 688	4	4	4	2	4
SSN 21				1	
CG 47	3	3	3	2	
DDG 51		2	5	5	5
LSD 41	2				
LHD 1	1		1	1	1
LSD 41 (VAR)			2	2	2
MCM	4	1			
MSH 1	4	4	4	4	
AR					1
TAO 187	2	2	2	2	2
TAGOS	2	2			
TAGS					
AE			1	1	1
AOE-6		1	1	1	1
AFDM			1		1
TOTAL	23	20	25	22	19

SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS

	FY86	FY87	FY88	FY89	FY90
LPD-4 SLEP			1	3	3
CV SLEP		1			1
BB REACT		1			
AO JUMBO			1	2	2
TAVB (CONV)	1				
TACS (CONV)	3	2	2		
AG (CONV)	1				
TOTAL	5	4	4	5	6

APPENDIX F

FY 87 NAVY FIVE YEAR SHIP CONSTRUCTION/CONVERSION PLAN

	FY87	FY88	FY89	FY90	FY91
NEW CONSTRUCTION					
TRIDENT	1	1	1	1	1
SSN 688	4	3	3	4	1
SSN 21			1		2
CG 47	2	2	2	2	
DDG 51	3	3	3	3	5
LHD 1		1	1		1
LSD 41 (Variant)		1	1	1	1
MCM		3			
MSH	4	4	4		
TAO	2	2	2	2	2
TAGOS	3	3	2	2	
AE		1		2	2
AOE 6	1		1	1	1
ARS					1
AGX AGOR	1			2	3
LCAC		(9)	(9)	(9)	(9)
TOTAL	21	24	21	20	20
SLEPs, CONVERSIONS, REACTIVATIONS, AND ACQUISITIONS					
CV SLEP		1			1
LPD 4 SLEP			1	3	3
AO (JUMBO C)	1	1	1	2	
TACS (C)	2	2	2		
TOTAL	3	4	4	5	4

APPENDIX G

CALENDER YEAR 1979
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/3	LCC 2	AOE 4
BB 0	LKA 5	AOR 7
DD/DDG 33/37	LST 18	AO/TAO 8/8
CG/CGN 21/8	LPD 13	AE/TAE 13/0
FF/FFG 59/6	LHA/LHD 3/0	TAF 1
SS 5	LPH 7	AFS/TAFS 7/0
SSN 67	LSD 13	fleet support ships
PHM 1	material support ships	TAGOS 0
mine warfare	AD 9	ARS 9
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 2/4

OHIO TRIDENT 0	LAFAYETTE TRIDENT 0
LAFAYETTE POSEIDON 31	ALLEN POLARIS 10

Category A Moblization Forces: FF 0

LST 2 DD 30 FFG 0 AE 0

SOURCE: Jane's Fighting Ships 1979-80
Jane's Publishing Incorporated, New York 1979

APPENDIX H

CALENDER YEAR 1980
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/3	LCC 2	AOE 4
BB 0	LKA 5	AOR 7
DD/DDG 39/37	LST 18	AO/TAO 3/13
CG/CGN 19/8	LPD 13	AE/TAE 11/0
FF/FFG 59/6	LHA/LHD 4/0	TAF 1
SS 5	LPH 7	AFS/TAFS 7/0
SSN 68	LSD 13	fleet support ships
PHM 1	material support ships	TAGOS 0
mine warfare	AD 10	ARS 8
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/2

OHIO TRIDENT 0 LAFAYETTE TRIDENT 0

LAFAYETTE POSEIDON 31 ALLEN POLARIS 8

Category A Moblization Forces: FF 0

LST 2 DD 20 FFG 0 AE 2

SOURCE: Jane's Fighting Ships 1980-81
Jane's Publishing Incorporated, New York 1980

APPENDIX I

CALENDER YEAR 1981
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/3	LCC 2	AOE 4
BB 0	LKA 5	AOR 7
DD/DDG 43/39	LST 18	AO/TAO 7/13
CG/CGN 18/9	LPD 13	AE/TAE 10/1
FF/FFG 55/7	LHA/LHD 5/0	TAF 1
SS 5	LPH 7	AFS/TAFS 7/1
SSN 74	LSD 13	fleet support ships
PHM 6	material support ships	TAGOS 0
mine warfare	AD 9	ARS 6
MSO 3	AS 13	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/7

OHIO TRIDENT 0 LAFAYETTE TRIDENT 0

LAFAYETTE POSEIDON 31 ALLEN POLARIS 2

Category A Moblization Forces: FF 4

LST 2 DD 9 FFG 0 AE 2

SOURCE: Jane's Fighting Ships 1981-82
Jane's Publishing Incorporated, New York 1981

APPENDIX J

CALENDER YEAR 1982
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/4	LCC 2	AOE 4
BB 1	LKA 5	AOR 7
DD/DDG 43/41	LST 18	AO/TAO 7/11
CG/CGN 18/9	LPD 13	AE/TAE 12/1
FF/FFG 55/22	LHA/LHD 5/0	TAF 1
SS 5	LPH 7	AFS/TAFS 7/2
SSN 82	LSD 13	fleet support ships
PHM 6	material support ships	TAGOS 0
mine warfare	AD 10	ARS 6
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/7

OHIO TRIDENT 1 LAFAYETTE TRIDENT 0

LAFAYETTE POSEIDON 31 ALLEN POLARIS 2

Category A Moblization Forces: FF 4

LST 2 DD 5 FFG 0 AE 0

SOURCE: Jane's Fighting Ships 1982-83
Jane's Publishing Incorporated, New York 1982

APPENDIX K

CALENDER YEAR 1983
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/4	LCC 2	AOE 4
BB 1	LKA 5	AOR 7
DD/DDG 31/37	LST 18	AO/TAO 7/11
CG/CGN 19/9	LPD 13	AE/TAE 12/1
FF/FFG 53/32	LHA/LHD 5/0	TAF 1
SS 4	LPH 7	AFS/TAFS 7/2
SSN 90	LSD 11	fleet support ships
PHM 6	material support ships	TAGOS 1
mine warfare	AD 9	ARS 5
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/7

OHIO TRIDENT 2	LAFAYETTE TRIDENT 0
LAFAYETTE POSEIDON 31	ALLEN POLARIS 0

Category A Moblization Forces:			FF 6
LST 2	DD 3	FFG 0	AE 0

SOURCE: Jane's Fighting Ships 1983-84
Jane's Publishing Incorporated, New York 1983

APPENDIX L

CALENDER YEAR 1984
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/4	LCC 2	AOE 4
BB 2	LKA 5	AOR 7
DD/DDG 31/37	LST 18	AO/TAO 7/11
CG/CGN 20/9	LPD 13	AE/TAE 12/1
FF/FFG 53/40	LHA/LHD 5/0	TAF 1
SS 4	LPH 7	AFS/TAFS 7/3
SSN 92	LSD 11	fleet support ships
PHM 6	material support ships	TAGOS 5
mine warfare	AD 9	ARS 5
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/7

OHIO TRIDENT 4	LAFAYETTE TRIDENT 0
LAFAYETTE POSEIDON 31	ALLEN POLARIS 0

Category A Moblization Forces: FF 6

LST 2 DD 1 FFG 1 AE 0

SOURCE: Jane's Fighting Ships 1984-85
Jane's Publishing Incorporated, New York 1984

APPENDIX M

CALENDER YEAR 1985
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant	amphibious ships	replenishment ships
CV/CVN 10/4	LCC 2	AOE 4
BB 2	LKA 5	AOR 7
DD/DDG 31/37	LST 18	AO/TAO 7/11
CG/CGN 22/9	LPD 13	AE/TAE 12/1
FF/FFG 52/48	LHA/LHD 5/0	TAF 1
SS 4	LPH 7	AFS/TAFS 7/3
SSN 97	LSD 11	fleet support ships
PHM 6	material support ships	TAGOS 7
mine warfare	AD 9	ARS 8
MSO 3	AS 12	ASR 6
MCM 0	AR 4	ATS 3
MSH 0	strategic sub force	ATF/TATF 0/7

OHIO TRIDENT 6	LAFAYETTE TRIDENT 12
LAFAYETTE POSEIDON 19	ALLEN POLARIS 0

Category A Moblization Forces: FF 7

LST 2 DD 1 FFG 5 AE 0

SOURCE: Jane's Fighting Ships 1985-86
Jane's Publishing Incorporated, New York 1985

APPENDIX N

CALENDER YEAR 1986
U.S. NAVAL FORCE SUMMARY
(BY SHIP TYPE)

combatant

CV/CVN 10/4
BB 3
DD/DDG 31/37
CG/CGN 24/9
FF/FFG 51/46
SS 4
SSN 97
PHM 6

mine warfare

MSO 3
MCM 0
MSH 0

amphibious ships

LCC 2
LKA 5
LST 18
LPD 13
LHA/LHD 5/0
LPH 7
LSD 9

material support ships

AD 9
AS 12
AR 4

replenishment ships

AOE 4
AOR 7
AO/TAO 7/11
AE/TAE 12/1
TAF 1
AFS/TAFS 7/3

fleet support ships

TAGOS 8
ARS 6
ASR 6
ATS 3
ATF/TATF 0/7

strategic sub force

OHIO TRIDENT 8
LAFAYETTE TRIDENT 12
LAFAYETTE POSEIDON 16
ALLEN POLARIS 0

Category A Moblization Forces:

FF 8
LST 2
DD 1
FFG 9
AE 0

SOURCE: Jane's Fighting Ships 1986-87
Jane's Publishing Incorporated, New York 1986

LIST OF REFERENCES

1. U.S. Department of Defense, Department of the Navy, *Posture Statement by Chief of Naval Operations, for the Fiscal Year 1986*.

2. U.S. Department of Defense, Department of the Navy, *Posture Statement by Secretary of the Navy, for the Fiscal Year 1987*.

3. U.S. Department of Defense, Department of the Navy. *Posture Statement by the Chief of Naval Operations, for the Fiscal Year 1979*.

4. U.S. Congress, House. Committee on Armed Services. *Seapower and Strategic and Critical Materials Subcommittee Title I. Hearings on Military Posture and H.R. 2970 and H.R. 2614*, 97th Congress. 1st Session. 1981.

5. Polmar, Norman. *The Ships and Aircraft of the U.S. Fleet*, U.S. Naval Institute Press, 1978.

6. Morison, Samuel L., "U.S. Navy Under Way Again," in *Jane's Naval Review*, ed., Captain John Moore RN, 1985.

7. U.S. Congress, Senate, Congressional Budget Office, *Building a 600-Ship Navy: Costs, Timing and Alternative Approaches*, March 1982.

8. U.S. Congress, House, Committee on Appropriations, *Hearings before a subcommittee of the Committee on Appropriations*, 97th Congress, 1st session, Part 6, 1982.

9. U.S. Department of Defense, Department of the Navy, *Posture Statement by the Chief of Naval Operations, for the Fiscal Year 1981*.

10. U.S. Congress, House, Committee on Appropriations, *Hearings before a subcommittee of the Committee on Appropriations*, 97th Congress, 1st session, Part 3, 1982.

11. *Jane's Fighting Ships 1983-84*, Jane's Yearbooks, Jane's Publishing Inc., 1983.

12. *Congressional Quarterly Almanac*, "Reagan Defense Plans Given Final Approval," 1981.

13. *Congressional Quarterly Almanac*, "Defense Funds," 1980.

14. *Congressional Quarterly Almanac*, "Major Congressional Action," 1982.

15. Polmar, Norman, "600 Ships-Plus or Minus?" *Proceedings*, U.S. Naval Institute Press, August 1986.

16. U.S. Congress, House, Committee on Appropriations, *Hearings before a subcommittee of the Committee on Appropriations*, 97th Congress, 2nd session, Part 2, 1985.

17. *Jane's Fighting Ships 1984-85*, Jane's Yearbooks, Jane's Publishing Inc., 1984

18. *Congressional Quarterly Almanac*, "Naval Warfare", 1983.

19. Polmar, Norman, *The Ships and Aircraft of the U.S. Fleet*, Arms and Armour Press, 1985.

20. U.S. Congress, House, Committee on Appropriations, *Hearings before a subcommittee of the Committee on Appropriations*, 97th Congress, 2nd session, Part [illegible], 1987.

21. *Jane's Fighting Ships 1986-87*, Jane's Yearbooks, Jane's Publishing Inc., 1986.

22. *Jane's Fighting Ships 1982-83*, Jane's Yearbooks, Jane's Publishing Inc., 1982.

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